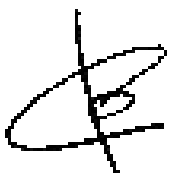
ALL.4

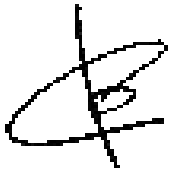
ALL.4.1 DICHIARAZIONE DI CONFORMITA' Impianti energia

ALL.4.2 Relazione tecnica di progetto



ALL.4.1

DICHIARAZIONE DI CONFORMITA’



DICHIARAZIONE DI CONFORMITÀ DELL'IMPIANTO ALLA REGOLA DELL'ARTE

(Art. 7 del Decreto M.S.E. n. 37 del 22 gennaio 2008 – Decreto M.S.E. del 19 maggio 2010)

Il sottoscritto HAMELUSZ ALICJA IRENA

titolare o legale rappresentante dell'impresa (ragione sociale) IMPIANTI ENERGIA SRL

operante nel settore: METALMECCANICO

con sede in via VICOLO CUSTODI n. 2 – 21052 Comune BUSTO ARSIZIO (VA)

tel. 0331.840450_____Partita IVA 03621250129

☐ iscritta nel registro delle imprese (d.P.R. 7/12/1995, n. 581)
della Camera C.I.A.A. di VARESE n. B320 377 153

~~☐ iscritta all'albo Provinciale delle imprese artigiane (l. 8/8/1985, n. 443) di _____ n._____~~

esecutrice dell'impianto (descrizione schematica): Install.meccanica di nu 8 gruppi elettrogeni, suddivisi in due sezioni da quattro gruppi ciascuna, completo di silenziatori, condotte evac.fumi, serbatoi ed impianti di distrib.gasolio e acqua raffr. LOTTO DC-07.Il tutto commissionato dalla ditta ENERIA.

inteso come: ☐ nuovo impianto ~~☐ trasformazione~~ ~~☐ ampliamento~~ ~~☐ manutenzione straordinaria~~ ~~☐ altro (1)~~_____

Nota - Per gli impianti a gas specificare il tipo di gas distribuito: canalizzato della 1ª - 2ª - 3ª famiglia; GPL da recipienti mobili; GPL da serbatoio fisso. Per gli impianti elettrici specificare la potenza massima impegnabile.

commissionato da: DATA4 installato nei locali siti nel Comune di SETTIMO MILANESE - CORNAREDO (Prov.MI) via REISS ROMOLI
~~scala ____ piano ____ interno ____~~ di proprietà e indirizzo: DATA4, Piazza Eleonora DUSE 2, 20122 MILANO

in edificio adibito ad uso: ☐ industriale ~~☐ civile~~ ~~☐ commercio~~ ~~☐ altri usi;~~

DICHIARA

sotto la propria personale responsabilità, che l'impianto è stato realizzato in modo conforme alla regola dell'arte, secondo quanto previsto dall'art. 6, tenuto conto delle condizioni di esercizio e degli usi a cui è destinato l'edificio, avendo in particolare:

☐ rispettato il progetto redatto ai sensi dell'art. 5 da (2)__Cesare Ing. Prada - Eneria;
☐ seguito la norma tecnica applicabile all'impiego (3)_DM13-07-2011, Linee guida serb interrati ARPA Lombardia;
☐ installato componenti e materiali adatti al luogo di installazione (artt. 5 e 6);
☐ controllato l'impianto ai fini della sicurezza e della funzionalità con esito positivo, avendo eseguito le verifiche richieste dalle norme e dalle disposizioni di legge.

Allegati obbligatori:

☐ progetto ai sensi degli articoli 5 e 7 (4);
☐ relazione con tipologie dei materiali utilizzati (5);
☐ schema di impianto realizzato (6);
☐ riferimento a dichiarazioni di conformità precedenti o parziali, già esistenti (7);
☐ copia del certificato di riconoscimento dei requisiti tecnico-professionali;
☐ attestazione di conformità per impianto realizzato con materiali o sistemi non normalizzati (8).

Allegati facoltativi (9):

DECLINA

ogni responsabilità per sinistri a persone o a cose derivanti da manomissione dell'impianto da parte di terzi ovvero da carenze di manutenzione o riparazione.

Data 05 aprile 2023 Il responsabile tecnico Il dichiarante

ORDINE DEGLI INGEGNERI DELLA PROVINCIA DI MONZA E DELLA BRIANZA
DOTT. ING. PRADA CESARE
Sez. A Settori: a) civile e ambientale b) industriale
n° A 345

(timbro e firma)

AVVERTENZE PER IL COMMITTENTE: responsabilità del committente o del proprietario, art. 8 (10)

Hamelusz Alicja Irena
IMPIANTI ENERGIA S.r.l.

ALL.4.2

INSTALLAZIONE
IMPIANTO GRUPPI ELETTROGENI DI SOCCORSO
LOTTO DC07
Settimo Milanese MI

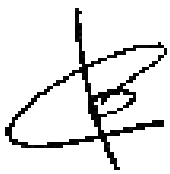
Committente: Eneria-CAT

Proprietà: DATA 4 ITALY Srl

RELAZIONE TECNICA DI PROGETTO

PARTE MECCANICA

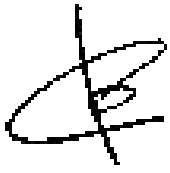
Settimo M. 05 aprile 2023



INDICE

1 PREMESSA 5
2 DESCRIZIONE DELL'IMPIANTO MECCANICO 5
3 DESCRIZIONE DELLE OPERE. 6
4 RIFERIMENTI NORMATIVI 6
5 COMPONENTI 7

All.4.2.1 SERBATOI INTERRATI e VALVOLA DI SOVRAPPIENO.
All.4.2.2 CAMINI DI SCARICO FUMI
All.4.2.3 SISTEMA RILEVAZIONE PERDITE GASOLIO
All.4.2.4 TUBAZIONI GAS SCARICO FUMI
All.4.2.5 TUBAZIONI GASOLIO INTERRATE
All.4.2.6 TUBAZIONI GASOLIO FUORI TERRA



3 PREMESSA

3.1 L'impianto di cui all'oggetto è parte di un progetto più vasto per la realizzazione di un "Data center" di proprietà di DATA 4 ITALY srl, p.za E. Duse, 2 20122 Milano.

3.2 La presente relazione riguarda il lotto denominato DC07.

3.3 L'impianto riguarda n. 8 Gruppi elettrogeni di soccorso che intervengono in emergenza alla mancanza di corrente dalla rete pubblica per mantenere attivo e funzionante il data center.

1.1 Gli 8 Gruppi elettrogeni sono installati in quattro sotto-centrali distinte nel corpo di fabbrica, cosi disposte:

1.1.1 GE A e B nello spigolo Nord-Est.

1.1.2 GE C e D nello spigolo Sud-Est.

1.1.3 GE E e F nello spigolo Nord-Ovest.

1.1.4 GE H e G nello spigolo Sud-Ovest.

3.4 Ciascuna coppia di GE è dotata di due serbatoi interrati di combustibile Gasolio, ciascuno da 40m3

4 DESCRIZIONE DELL'IMPIANTO MECCANICO

4.1 L'impianto oggetto della fornitura è principalmente costituito dalle seguenti voci:

4.1.1 Nu.otto (2+2+2+2) Serbatoi interrati a doppia camera da 40.000litri ciascuno, completi di sistema di rilevazione perdite dal serbatoio e valvola di soprappieno.

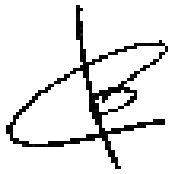
4.1.2 2+2+2+2 Camini fumi di scarico in atmosfera.

4.1.3 Sistema di rivelazione perdite di combustibile.

4.2 Tubazioni gas di scarico (fumi) di collegamento dei GE ai camini.

4.3 Tubazioni gasolio interrate in plastica a doppia camicia, tra punto di travaso ATB e serbatoi interrati, da serbatoi interrati a pozzetti sul perimetro fabbricato per ingresso nelle sale GE.

4.4 Tubazioni gasolio non interrate a semplice camicia in acciaio al C, da pozzetti esterni a serbatoi giornalieri, da serbatoi giornalieri a GE e ritorno.



5 DESCRIZIONE DELLE OPERE.

5.1 La Committente Eneria per la realizzazione “Impianto gruppi elettrogeni di soccorso” ha fornito il macchinario principale ovvero i gruppi elettrogeni completi delle parti accessorie quali i radiatori di raffreddamento, i serbatoi giornalieri del combustibile, i quadri elettrici di controllo, i silenziatori sullo scarico, oltre ad altre attrezzature minori, mentre per le parti di completamento e le opere di installazione e montaggio si è avvalsa di imprese in subappalto.

5.2 In particolare, le opere affidate alla ditta “Impianti energia” sono inerenti alla parte meccanica con fornitura di macchinari, materiali e opere di installazione e montaggio:

- Fornitura apparecchiature e macchinario di completamento (serbatoi esterni, camini, sistema rilevazione perdite di combustibile.).
- Fornitura del materiale di montaggio (tubi, tubi incamiciati, valvole, supporti, isolamenti termici e minuteria varia).
- Installazione e montaggio di quanto sopra.

6 RIFERIMENTI NORMATIVI

Il seguente elenco è da intendere come elenco di riferimento principale, ha carattere indicativo e non esaustivo dell’intero panorama legislativo.

6.1 DM 31-07-1934

6.2 DPR 01-08-2011 n.151

6.3 DIRETTIVA 97/23/CE (Nuova Direttiva PED) e DLG 26 del 15/02/2016 (Attuativo)

6.4 DM 01/12/1975 e successive modifiche

6.5 DM 329 del 01/12/2004 primo impianto e verifiche periodiche impianti PED

6.6 Nuova Direttiva Macchine 206/42/CE

6.7 D.Lvo 17 del 2010 Recepimento Nuova direttiva Macchine

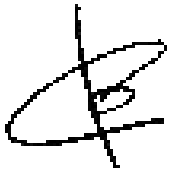
6.8 DM 37 del 2008 installazione impianti ex 46/90

6.9 DM 81del 2008 testo unico sulla sicurezza

6.10 DM 09/03/2007 antincendio

6.11 DM 13 luglio 2011 Approvazione della regola tecnica di prevenzione incendi per l’installazione di motore a combustione interna accoppiato a macchina generatrice elettrica.

6.12 Direttiva 94/9/CE Direttiva materia di prodotti destinati ad essere utilizzati in atmosfere potenzialmente esplosive

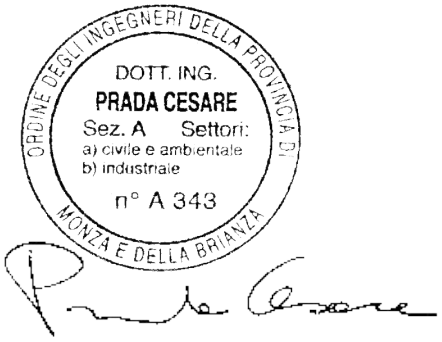


7 COMPONENTI

7.1 I componenti di cui a seguito sono conformi a quanto previsto dagli articoli 5, 6 (DM 37-2008) e sono idonei all'ambiente di installazione in Allegato i certificati e descrizioni dei componenti.

7.2 Presso lo stabilimento DATA 4 ITALY Srl in Settimo Milanese, sono presenti tutti gli ulteriori documenti di progetto e di certificazione dei componenti minori.

Cesare Ing. Prada



All.4.2.1 SERBATOI INTERRATI e VALVOLA DI SOVRAPPIENO.

SPECIFICA SERBATOI

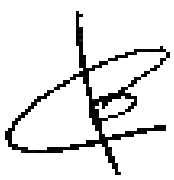
CALIBRAZIONE SERBATOIO

SISTEMA RILEVAZIONE PERDITE

COLLAUDO SERBATOI

VERIFICA INSTALLAZIONE

VALVOLA SOVRARIEMPIMENTO E CERTIFICATO



Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

GIS.IMO S.r.l.
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impianti elettrici/dati

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Tél. : +33 (0) 169802100
Fax : +33 (0) 169802150

Progettazione antincendio

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via Ludovico il Moro, 17 - 20143 MILANO
www.studiozaccarelli.it
Tél. : +39 02 891 200 81
Fax : +39 02 813 962 8

Supervisione

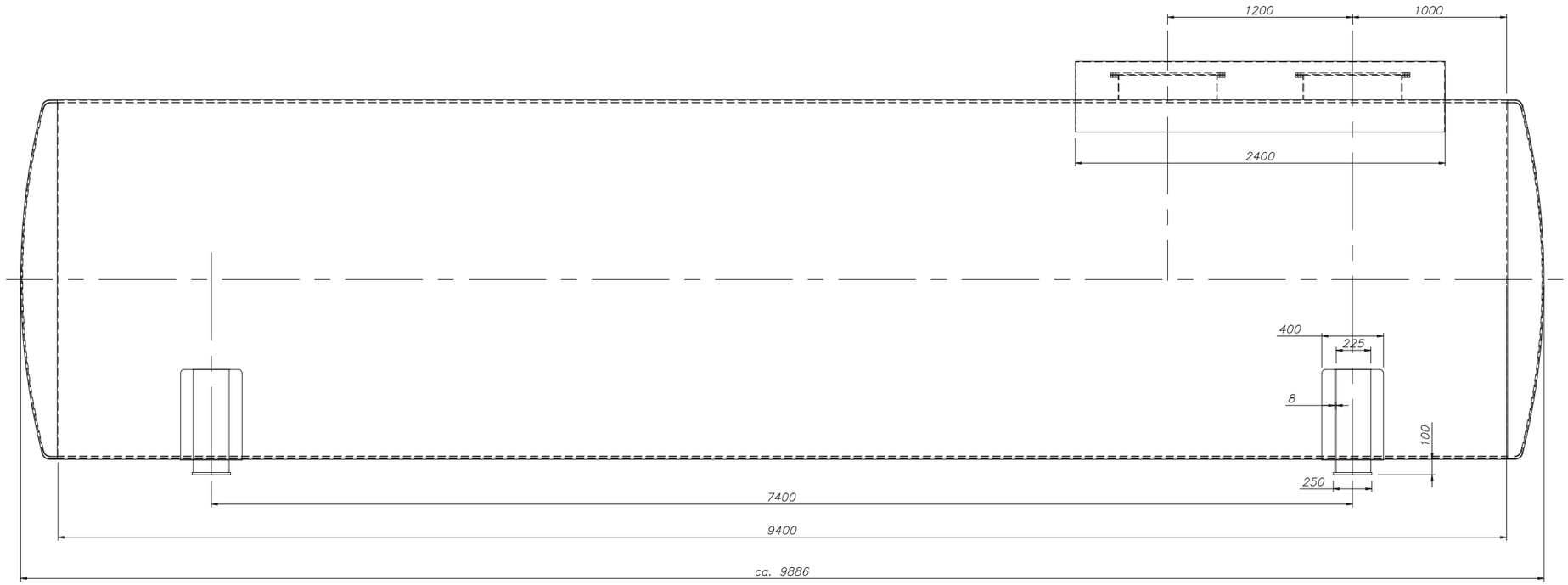
ITALSOCOTEC S.p.a.
Via Pontaccio,12/A- 20121 Milano
italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

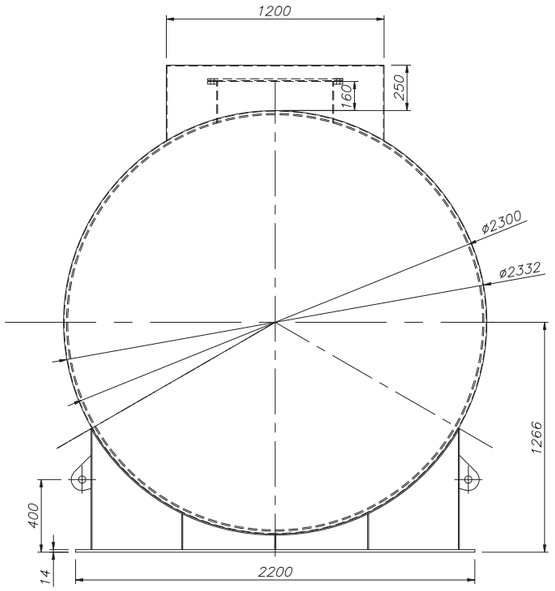
Cod	Data	Descrizione
	31/01/2023	DOE

DATA 4 ITALY - DC07 Milan

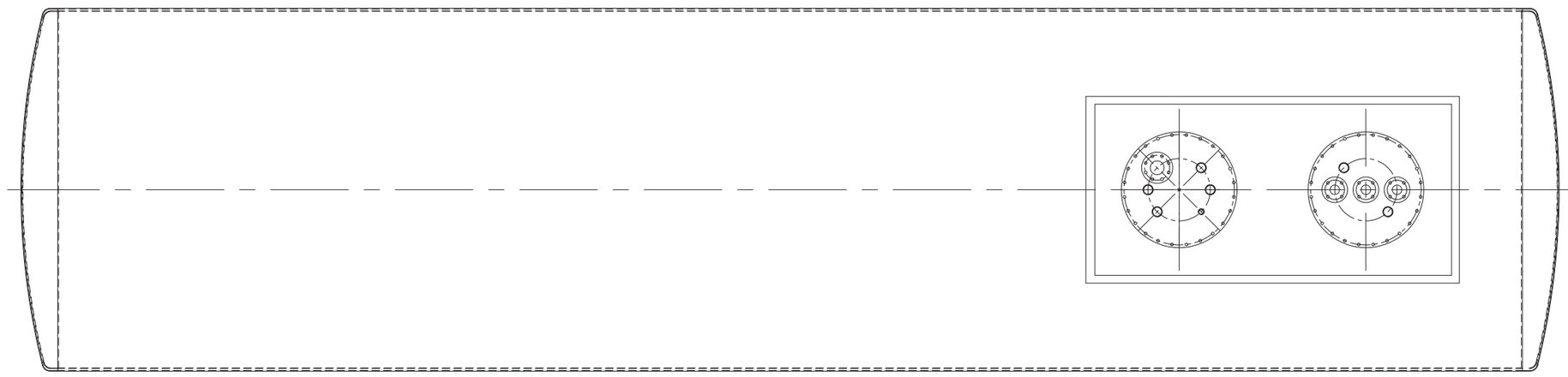
Fiche technique cuve principale/ Main tank datasheet

Scheda serbatoio



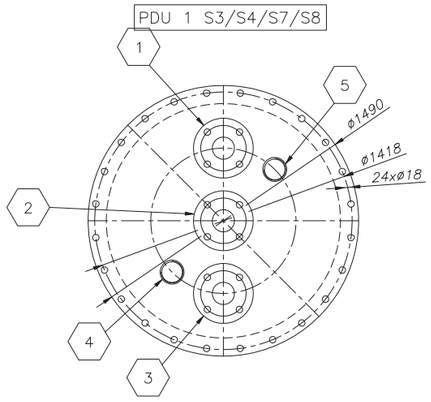


CAP (mc)	DIAMETRO ESTERNO (mm)	DIAMETRO INTERNO (mm)	LUNGHEZZA FASCIAME ESTERNO (mm)	SPESSORE (mm)			
				INTERNO		CAMICIA	
				MANTELLO	FONDO	MANTELLO	FONDO
40	2332	2300	ca. 9890	5	5	4	4
–	–	–	–	–	–	–	–

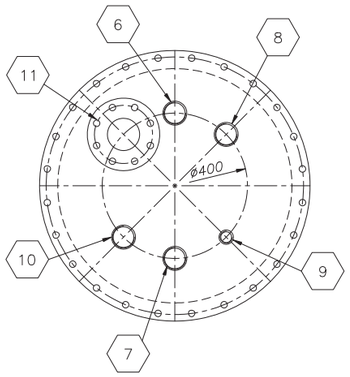


VISTA COPERCHIO PDU1
(2:1)

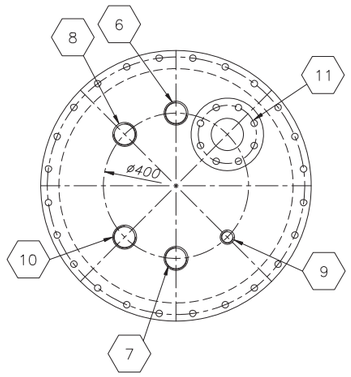
PDU 1 S3/S4/S7/S8



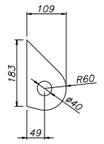
PDU 2 S7/S4



PDU 2 S3/S8



DETT. GOLFARE DI TERRA (2:1)



ELENCO CONNESSIONI / *LIST OF CONNECTIONS*

SIGLA *MARK*	DESCRIZIONE *DESCRIPTION*	DIST. ASSE/ LL *AXIS DIST/T.L.*	N°	DIA.	FLANGE / *FLANGES* TIPO /*TYPE*	Sp./*TH.*	MATERIALE /*MATERIAL*	
1	FLANGIA DN50	VEDI DIS.	1	2"	UNI1092 PN10 filettata	–	–	
2	FLANGIA DN50	VEDI DIS.	1	2"	UNI1092 PN10 filettata	–	–	
3	FLANGIA DN50	VEDI DIS.	1	2"	UNI1092 PN10 filettata	–	–	
4	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
5	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
6	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
7	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
8	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
9	MANICOTTO DN25	VEDI DIS.	1	1"	manicotto filetto G	–	–	
10	MANICOTTO DN50	VEDI DIS.	1	2"	manicotto filetto G	–	–	
11	FLANGIA DN80	VEDI DIS.	1	3"	UNI1092 PN10 filettata	–	–	
H1/2	COPERCHIO ø745mm	VEDI DIS.	2	–	–	10	S235JR	

Peso serbatoio	Tara	Brutto	
	–	–	
Pressione minima di collaudo	Mantello	Camicia	
	0.75 bar idraulico 0.3 bar pneumatico	0.4 bar idraulico 0.4 bar pneumatico	
Classe serbatoi	A	Liquidi con densità fino a 1,1 kg/l idonea per Carburanti e Acqua	
Normativa di riferimento	–		
Connessioni Flangiate	–		
Manicotti	Filettati GAS		

10	
9	
8	
7	
6	
5	
4	Pozzetto S235JR H=250mm
3	Flangia ø est. 745 ø int. 645 spessore 10 mm.
2	Guarnizione ø est. 745 ø int. 645 spessore 5 mm. in MTVC 66.1/2
1	Coperchio ø 755 spessore 10 mm
Pos.	Descrizione / *Description*

ELENCO MATERIALI/*MATERIAL LIST*

Note generali
- il serbatoio è costruito in acciaio al carbonio S235JR
- parti interne del serbatoio pulite da scarti di lavorazione ed impurità
- vetroresinatura esterna spessore 2mm
- FONDI TIPO B – Bassa Bombatura

REV.	DATA	DESCRIZIONE	DIS.	CONTR.	APPR.
4					
3	06/09/2022	AGGIORNATO AS–BUILT	M.M.	F.B.	––
2	14/07/2022	EMESSO PER COSTRUZIONE	M.M.	F.B.	––
1	07/07/2022	REVISIONE GENERALE	M.M.	F.B.	––
0	28/06/2022	EMISSIONE PER APPROVAZIONE	M.M.	F.B.	––

B&G GAS S.r.l. unipersonale
COSTRUZIONE SERBATOI
VIA PISIGNANO, 3601
47522 RONTA DI CESENA (FC)

CLIENTE: IMPIANTI ENERGIA

–

DESCRIZIONE: SERBATOIO STOCCAGGIO

40.000 lt

ITEM S3/S4/S7/S8

SCALA: / | COMM. 22004 | DIS N° 22004_050_DWG_R02 | Fg. 1 di 1

Proprietà

DATA 4 ITALY

Progetto

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www.eneria.fr
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Progettazione antincendio

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Cod	Data	Descrizione
	31/01/2023	DOE

Bareme de jaugeage Cuve / Fuel Tank Gauging Scale
Tabella di taratura serbatoio

BG GAS

TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 158

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 159

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 160

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 161

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 199

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 200

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 201

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

Livelli in centimetri Volumi in litri

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TABELLA DI RAGGUAGLIO PER SERBATOI AD ASSE ORIZZONTALE

Diametro interno : 2300 mm Capacità: MC. 40
Lunghezza tot. interna : 9850 mm
Matricola n. : 202

livello	volume	livello	volume	livello	volume	livello	volume
1.0	19.1	59.0	8116.7	117.0	20585.0	175.0	32927.1
2.0	53.9	60.0	8312.2	118.0	20809.1	176.0	33116.7
3.0	99.0	61.0	8508.7	119.0	21033.1	177.0	33305.1
4.0	152.4	62.0	8706.3	120.0	21257.1	178.0	33492.1
5.0	212.8	63.0	8905.0	121.0	21481.0	179.0	33677.9
6.0	279.6	64.0	9104.7	122.0	21704.8	180.0	33862.4
7.0	352.1	65.0	9305.3	123.0	21928.4	181.0	34045.4
8.0	429.9	66.0	9506.9	124.0	22151.9	182.0	34227.1
9.0	512.6	67.0	9709.5	125.0	22375.3	183.0	34407.4
10.0	599.9	68.0	9913.0	126.0	22598.5	184.0	34586.1
11.0	691.5	69.0	10117.4	127.0	22821.4	185.0	34763.4
12.0	787.3	70.0	10322.6	128.0	23044.2	186.0	34939.2
13.0	886.9	71.0	10528.7	129.0	23266.8	187.0	35113.4
14.0	990.3	72.0	10735.7	130.0	23489.0	188.0	35286.0
15.0	1097.3	73.0	10943.4	131.0	23711.1	189.0	35457.0
16.0	1207.7	74.0	11152.0	132.0	23932.8	190.0	35626.3
17.0	1321.4	75.0	11361.3	133.0	24154.3	191.0	35793.9
18.0	1438.2	76.0	11571.4	134.0	24375.4	192.0	35959.8
19.0	1558.2	77.0	11782.1	135.0	24596.2	193.0	36123.8
20.0	1681.1	78.0	11993.6	136.0	24816.6	194.0	36286.1
21.0	1806.9	79.0	12205.8	137.0	25036.7	195.0	36446.4
22.0	1935.4	80.0	12418.6	138.0	25256.3	196.0	36604.9
23.0	2066.7	81.0	12632.1	139.0	25475.6	197.0	36761.4
24.0	2200.6	82.0	12846.2	140.0	25694.4	198.0	36915.9
25.0	2337.0	83.0	13060.9	141.0	25912.8	199.0	37068.3
26.0	2475.9	84.0	13276.2	142.0	26130.7	200.0	37218.6
27.0	2617.2	85.0	13492.0	143.0	26348.1	201.0	37366.7
28.0	2760.8	86.0	13708.4	144.0	26565.0	202.0	37512.6
29.0	2906.7	87.0	13925.3	145.0	26781.4	203.0	37656.3
30.0	3054.9	88.0	14142.7	146.0	26997.3	204.0	37797.6
31.0	3205.2	89.0	14360.6	147.0	27212.5	205.0	37936.5
32.0	3357.6	90.0	14579.0	148.0	27427.2	206.0	38072.9
33.0	3512.1	91.0	14797.8	149.0	27641.3	207.0	38206.7
34.0	3668.5	92.0	15017.1	150.0	27854.8	208.0	38338.0
35.0	3827.0	93.0	15236.8	151.0	28067.7	209.0	38466.6
36.0	3987.4	94.0	15456.8	152.0	28279.8	210.0	38592.4
37.0	4149.6	95.0	15677.3	153.0	28491.3	211.0	38715.3
38.0	4313.7	96.0	15898.0	154.0	28702.1	212.0	38835.2
39.0	4479.5	97.0	16119.2	155.0	28912.1	213.0	38952.1
40.0	4647.1	98.0	16340.6	156.0	29121.5	214.0	39065.8
41.0	4816.4	99.0	16562.4	157.0	29330.0	215.0	39176.2
42.0	4987.4	100.0	16784.4	158.0	29537.8	216.0	39283.1
43.0	5160.0	101.0	17006.7	159.0	29744.7	217.0	39386.5
44.0	5334.2	102.0	17229.2	160.0	29950.8	218.0	39486.2
45.0	5510.0	103.0	17452.0	161.0	30156.1	219.0	39581.9
46.0	5687.3	104.0	17675.0	162.0	30360.5	220.0	39673.6
47.0	5866.1	105.0	17898.2	163.0	30563.9	221.0	39760.8
48.0	6046.3	106.0	18121.5	164.0	30766.5	222.0	39843.5
49.0	6228.0	107.0	18345.0	165.0	30968.1	223.0	39921.3
50.0	6411.1	108.0	18568.7	166.0	31168.8	224.0	39993.8
51.0	6595.5	109.0	18792.5	167.0	31368.4	225.0	40060.6
52.0	6781.3	110.0	19016.3	168.0	31567.1	226.0	40121.1
53.0	6968.4	111.0	19240.3	169.0	31764.7	227.0	40174.4
54.0	7156.7	112.0	19464.4	170.0	31961.2	228.0	40219.5
55.0	7346.4	113.0	19688.4	171.0	32156.7	229.0	40254.4
56.0	7537.2	114.0	19912.6	172.0	32351.0	230.0	40273.4
57.0	7729.2	115.0	20136.7	173.0	32544.2		
58.0	7922.4	116.0	20360.9	174.0	32736.3		

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DATA 4 ITALY - DC07 Milan

Fiche technique détecteur de fuite cuve / Leak detection tank Datasheet
Scheda Rilevatore di perdite Serbatoi

Vacuum leak detector

VL ..

Documentation VL

Art. no.: 605 302
Issue: 06/2022

SGB GMBH
Hofstraße 10
57076 Siegen
GERMANY

Before commencing
any work, please read
the instructions

Overview of the design variants

The vacuum leak detectors of the VL-series are available in different designs, which are described in detail by the suffix characters. The levels of availability and the possible combinations depend on the device. Please contact our sales team: +49 271 48964-0, sgb@sgb.de

VL .. E FA P M MV S Si

“**S**ervice **i**ndication“: integrated service indicator (LED) with an adjustable service period

”**S/**Service display“: integrated service indicator (LED) with a fixed 12-month interval

”**M**agnet**v**entil/Solenoid valve“: A solenoid valve with monitored function can be connected for applications with high pressure in the inner tank.

”**M**anometer“: The leak detector is equipped with a digital pressure display in the housing cover.

”**P**rotected“: Construction of the leak detector in a weatherproof housing.

”**F**üllstands**a**nzeige**/f**illing level indication“: The leak detector is equipped with an electronic filling level indicator

„**E**nlarged functions“: With this design there is the option to connect and control additional equipment like magnetic valves and/or sensors.

„**..**“ = “Numerical value” for the alarm-vacuum of the leak detector. The alarm pressures range from 34mbar to 570 mbar.

“**V**acuum **l**eak detector“: The leak detector operates with negative pressure towards the atmosphere.

Contents of the documentation

1	Technical description		17 pages
2	Drawings to the technical description		15 pages
3	Appendix to the technical description		9 pages
	3.1	Appendix A: Use of the vacuum leak detector VL .. on interstitial spaces filled with leak detection liquid	1 page
	3.2	Appendix E: Height (diameter) and density	2 pages
	3.3	Appendix TD: Technical Data	1 page
	3.4	Appendix DP: Evaluating the display for the function "Tightness test"	1 page
	3.5	Using the leak detector on tanks which have been allowed to warm up	4 pages
	3.6	VL .. FA7: Programming the level indicator	2 pages
4	Dimension and Drilling, Plastic housing		1 page
5	Dimension and Drilling, Stainless-steel housing, weather protected		1 page
6	Working sheet „pneumatic connections“		2 pages
7	EU Declaration of Conformity		1 page
8	Declaration of performance (DoP) and manufacturer’s declaration of compliance		1 page
9	Certification TÜV Nord		2 pages
10	Warranty		1 page

Table of contents

		Page
1	Object	2
2	Field of application	2
2.1	Interstitial space requirements	2
2.2	Material to be stored	2
2.3	Resistance/materials	2
2.4	Tanks with up to 0.5 bar superimposed pressure	3
2.5	Tanks with pressures up to 5 bar (in liquid leak case)	4
2.6	Tanks with up to 10 bar superimposed pressure	4
3	Functional description	4
3.1	Normal operation	4
3.2	Air leak	4
3.3	Liquid leak	5
3.4	Switching values of the leak detector	5
3.5	Description of the display and operating elements	6
4	Mounting instructions	7
4.1	General notes	7
4.2	Mounting the leak detector	7
4.3	Mounting the (pneumatic) connection lines	8
4.4	Mounting the probe (VL .. E only)	9
4.5	Mounting the solenoid valve(s) (VL .. E only)	9
4.6	Selection of the (electrical) supply line (VL .. E only)	10
4.7	Electrical connection	10
4.8	Installation examples	10
5	Start-up	11
6	Operating instructions	12
6.1	General instructions	12
6.2	Intended use	12
6.3	Maintenance	12
6.4	Functional test	12
6.5	Alarm	15
7	Marking	16
8	Index used	16

Drawings:

Position of three-way valves	P–060 000
Installation examples (basic sketches) for tanks	A–01 to O–01
Block diagram VL ..	SL–853 600
Block diagram VL .. E	SL–854 800
Testing equipment	P–115 392

Appendices:

A	Use of the leak detector VL .. on tanks with interstitial spaces filled with leak detection liquid	A-1
E	Usage limits VL ..	E-1
TD	Technical data	TD-1
DP	Evaluating the display for the function “Tightness test”	DP-1
W	Using the VL .. leak detector on tanks which have been allowed to warm up	W-1
FA	Programming the filling level indicator FA7	FA-1

1. Object

Vacuum leak detector of the type VL .. (Dots stand for alarm vacuum) as part of a leak detection system in the following versions:

a) VL ..

b) VL .. E (Extended version, i.e., either a leak probe or solenoid valve or both can be connected in addition)

Leak probe: Either in place of the liquid stop valve if special installation conditions or resistance matters make it necessary or as a probe used separately (e.g., in the leakage containment).

Solenoid valves: **Must be used** whenever tanks are operated at **more than 5 bar** overlay pressure or if resistance requirements make them necessary (system is then executed resistant up to the solenoid valves).

2. Area of application

2.1. Interstitial space requirements

- Vacuum resistance to the operating vacuum of the leak detector, also taking fluctuations in temperature into account.
- Assurance of the suitability of the interstitial space as part of a leak detection system (e.g., DIN standards, proofs of usability issued by the building inspection authorities, determination of suitability etc.)
- No leak detection liquid in the interstitial space (see app. A if this is nevertheless the case)
- The tanks listed under sections 2.4 to 2.6 meet the above requirements acc. to App. E.
- The volume of the space monitored by the leak detector may not exceed 8 m^3 for tanks. The manufacturer recommends not to exceed 4 m^3.

2.2. Material to be stored

Liquids hazardous to water with a flash point > 60°C (for Germany > 55°C acc. to TRGS 509 and 751), where no potentially explosive vapor-air mixtures occur.

2.3. Resistance/materials

For the leak detector VL .. the material polyamide (PA) in connection with brass (MS-58) or (1.4301, 1.4306, 1.4541)[1] or 1.4571[2] as well as the material of the connecting tubes used has to be sufficiently resistant to the material to be stored/conveyed.

If the materials mentioned above are not sufficiently resistant, correspondingly resistant solenoid valves can be used in the tanks.

[1] cf. DIN 6601, centre column
[2] cf. DIN 6601, right-hand column

2.4. Tanks with up to 0.5 bar superimposed pressure

Group	Tank design	Installation example	Suitable leak detector type	Use limits
A	Single-wall, horizontal (below / above ground), cylindrical tanks or spherical tanks with leak detection lining or jacketing and suction line leading to the low point	A – 01	VL 34 to VL 570	None with respect to density and diameter
B	As A, but without suction line to the low point	B – 01	VL 230 to VL 570	Appendix E, No. E.1
C	Double-walled, horizontal, cylindrical (below / above ground) tanks or spherical tanks			
D	Double-walled (also single-wall with leak detection lining or jacketing), vertical, cylindrical tanks or troughs with a dished bottom (below / above ground) with suction line to the low point	D – 01	VL 34 to VL 570	Appendix E, No. E.3
E	As D, but without suction line to the low point	E – 01	VL 230 to VL 570	Appendix E, No. E.1
F	Rectangular or cylindrical tanks or troughs with flat bottom (completely double-walled or with leak detection lining or jacketing) with suction line to the low point	A – 01	VL 34 to VL 570	Appendix E, No. E.2
G	As F, but without suction line to the low point	B – 01	VL 230 to VL 570	Appendix E, No. E.1
H	Battery tanks in series, with suction line to the low point	H – 01	VL 30-70	Manufacturer-related Appendix E, No. E.4
I	Battery tanks parallel, without suction line to the low point, individually monitored battery tanks as G	I – 01	VL 320-420	Installation instructions acc. to I-01
J	Double-walled surface seals	J – 01	VL 230 to VL 570	Appendix E, No. E.1
K	Double-walled shafts of hydraulic cylinders (e.g. in lifts)	K – 01	VL 34 to VL 570	Appendix E, No. E.2

2.5. Tanks with pressures up to 5 bar (in liquid leak case)

Group	Type of tank	Installation example	Suitable leak detector type	Use limits
L	Vertical cylindrical tanks with double bottom (leak detection lining), leak detector connected at the bottom (e.g., GFK tanks or tanks according to DIN 4119)	L – 01	VL 255	Tank height: ≤ 25 m
M	As L, but suction and measuring pipe as joint pipe leading from the tank (with node point)	M – 01		
N	As L, but with several (parallel) pipes leading from the tank. Interstitial space divided into segments.			

2.6. Tanks with superimposed pressures up to 10 bar

Group	Type of tank	Installation example	Suitable leak detector type	Use limits
O	Versions as under 2.4, in as far as overlay pressures up to 10 bar are permissible in the respective tank.	As 2.4, but **with** solenoid valve(s): O – 01	VL 34 E to VL 570 E	See 2.4

3. Functional description

3.1. Normal operation

The vacuum leak detector is connected to the interstitial space via the suction and measuring line, possibly also via the connection line(s). The vacuum generated by the pump is measured and controlled by a pressure sensor.

When the operating vacuum (pump OFF) has been reached, the pump is switched off. Due to slight, unavoidable leaks in the leak detection system, the vacuum begins to fall slowly. When the switching value for “pump ON” has been reached, the pump is switched on and the interstitial space evacuated until the operating vacuum (pump OFF) has been reached again.

During normal operation the vacuum moves between the switching value pump OFF and the switching value pump ON, with the pump running for a short time and then switching off for a longer time, depending on the tightness and temperature fluctuations in the complete system.

3.2. Air leak

If an air leak occurs (in the outer or inner wall, above the liquid level) the vacuum pump switches on in order to re-establish the operating pressure. If the air flow leaking into the pipe exceeds the limited feed flow of the pump, the pump remains on continuously.

Increasing leak rates lead to a further increase in pressure until the switching value for alarm ON has been reached. An optical and audible alarm signal is triggered. If solenoid valves are closed, the pump stops.

3.3. Liquid leak

In the case of a liquid leak, liquid enters the interstitial space and collects at the lowest point of the interstitial space.

The incoming liquid leads to the vacuum dropping, the pump is switched on and evacuates the interstitial space(s) until operating pressure has been reached. This process is repeated until the liquid stop valve in the suction line closes.

Due to the vacuum still present in the measuring line, further leak liquid is sucked into the interstitial space, the measuring pipe and into a pressure compensating vessel if appropriate. This leads to reduction of the vacuum until the pressure has reached the “alarm ON” level. The optical and audible alarm signal is triggered. If solenoid valves are connected, they close and the pump stops.

If in place of the liquid stop valve a leak probe is mounted in the suction line in connection with solenoid valves, the alarm signal is triggered when leak liquid reaches the leak probe. This closes the solenoid valves and the pump stops.

3.4. Switching values of the leak detector in mbar

NOTE: The leak detector with the lowest alarm pressure for the respective application should be used whenever possible (lower component wear)

Type	**alarm ON**	**Pump OFF**	Use on **Group:**
VL 34, VL 34 E	> 34	< 90	A/D/F/K/O
VL 30-70	> 30	< 70	H
VL 230	> 230	< 360	A to G and J/K/O
VL 255, VL 255 E	> 255	< 380	L/M/N also poss.: A to G and J/K/O
VL 320-420	> 320	< 420	I
VL 330, VL 330 E	> 330	< 450	A to G and J/K/O
VL 410, VL 410 E	> 410	< 540	A to G and J/K/O
VL 500, VL 500 E	> 500	< 630	A to G and J/K/O
VL 570, VL 570 E	> 570	< 700	A to G and J/K/O
VL .. - .. (E)	Special switching values agreed between SGB and customer		

The measured switching value for "alarm OFF" has to be at least 5 mbar smaller than the measured switching value for "pump OFF".

The measured switching value for "pump ON" has to be at least 15 mbar bigger than the measured switching value for "alarm ON".

3.5. Description of the display and operating elements

3.5.1 States of the display elements (signal lamps)

Signal lamp	Operating state	Start-up	Start-up, alarm acknowledges	Alarm, vacuum below the "alarm ON" level	Alarm, as left-hand column, acknowledged	Alarm probe	Alarm probe, acknowledged	Alarm solenoid valve	Alarm solenoid valve, acknowledged	Device malfunction
OPERATION: green	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
ALARM: red	OFF	BLINKING	BLINKING	ON	BLINKING	OFF	OFF	ON	BLINKING	ON[3]
ALARM 2[4]: red	OFF	BLINKING	BLINKING	OFF	OFF	ON	BLINKING	ON	ON	OFF

Description:

Start-up: If the alarm is acknowledged as the pump is being put into operation, an optical distinction is not made, the audible signal is on or off depending on the button position. When the switching value "alarm OFF" has been exceeded, the audible signal is always off.

Alarm $p<p_{AE}$: Alarm signal when the vacuum in the monitored system is below the switching value "alarm ON".
NOTE: If an alarm probe should occur following this alarm signal, the alarm probe has priority! (i.e., the alarm probe is displayed. Once the cause for this has been eliminated, the Alarm $p<p_{AE}$ will be displayed again.) The audible alarm signal is not given, but the other LED blinks according to the table.

Alarm probe: See Alarm $p<p_{AE}$

Alarm solenoid valve: Is triggered when the solenoid valve has an electrical defect.

Device malfunction: Is displayed if a fault should occur on the PCB.

3.5.2 Operating functions via buttons

- Switch off audible alarm signal:
  Press the "mute" button briefly once, the audible signal is switched off, the red LED blinks. If the button is pressed again, the audible signal is switched back on.
  This function is not available during normal operation and in the event of a malfunction.
- Testing the optical and audible alarm signal
  Press the "mute" button and keep it pressed (approx. 10 seconds), the alarm signal is triggered until the button is released again. This scan is only possible if the pressure in the system has exceeded the "alarm OFF" pressure.
- Checking the tightness of the system monitored
  Press the "mute" button and keep it pressed until the signal lamp "alarm" blinks quickly after approx. 5 seconds, then release the button. The "alarm" signal lamp displays a value for tightness on the basis of the number of blinks (see chapter 6.4.5)

[3] The "mute" button is without function

[4] Only applies to VL .. E

10 seconds after this value has been displayed the signal lamp returns to normal operation. The leak detector must have carried out at least 1 automatic post-feed interval in normal operation (i.e. without external assembly pump) to achieve a valid statement.

- Zero-point adjustment
  Three-way valve 21 in position II.
  Press the "mute" button and keep it pressed until the "alarm" signal lamp blinks quickly after approx. 5 seconds, then release the button. Press the button again immediately and then release it again. Adjustment is confirmed by 3 optical and audible signals.
  Before repeating zero-point adjustment the "pump OFF" switching value must be reached.

VL .. E ONLY

- Start-up (opening the solenoid valves)
  Press the "start-up" button and keep it pressed for approx. 5 seconds until both red signal lamps light up. The solenoid valves are opened, the pump starts to run. If this button is kept pressed longer than 10 seconds, the alarm signal is generated. Shortly after the button is released the alarm signal triggered is deleted again.
  For information about activating or deactivating the solenoid valves, refer also to chapter 4.5.1

4. Mounting instructions

4.1. General notes

(1) Heed manufacturers' approval for the tanks and the interstitial space.

(2) Installation and start-up must be carried out by a qualified company[5].

(3) Heed relevant regulations concerning electrical installation[6].

(4) Heed and observe accident prevention regulations.

(5) Pneumatic connections, connection lines and fittings must be able to withstand the pressure (static pressure plus superimposed pressure) which could occur in the case of a leak, for the whole temperature range possible.

(6) Before anyone enters a dome or control shaft, the oxygen content must be checked and the shaft flushed out if necessary.

4.2. Mounting the leak detector

(1) Wall mounting, within a building

(2) To allow the ventilation slots to work properly, make sure there is a side clearance of at least 2 cm from other objects and walls.

(3) Wall mounting in the open, using a suitable protective box.
If the detector is to be mounted in a protective box, at least one of the following points must be observed:
- Signal lamps for operation must be visible from the outside (protective box with transparent lid or signal lamps mounted on the outside)

[5] For Germany: Specialist firms according to the Federal Water Act, which have verified their qualification for the installation of leak detection systems. For Europe: Authorisation from the manufacturer.
[6] For Germany: e.g., VDE regulations, regulations issued by utilities companies.

- Use of potential-free contacts to extend alarm - if these contacts are not used, additional external signal

(4) OUTSIDE potentially explosive areas.

(5) As near to the tank as possible (cf. section (6) of the following chapter).

4.3. Mounting the (pneumatic) connecting lines

(1) Plastic hoses (e.g., PVC) or tubes made of plastic or metal.
Pressure resistance, see requirements specified in chapter 4.1.

(2) Clearance at least 6 mm.

(3) Resistant to the product to be stored.

(4) Color marking: *Measuring line*: RED; *Suction line*: WHITE or TRANSPARENT, *Exhaust line*: GREEN.

(5) The full cross-section must be retained.

(6) The length of the lines between the interstitial space and the leak detector should not exceed 50 m. If the distance is bigger, a larger pipe cross-section must be used.

(7) Routing lines with lowest points: mounting of condensate traps at each lowest point (heed pressure resistance specified in 4.1).

(8) Mount the liquid stop valve in the suction line (heed pressure resistance specified in 4.1).

(9) Exhaust line must lead with slope to the tank ventilation outlet. In the case of laying with lowest points, use condensate traps.

Alternatively: The exhaust line can terminate out in the open, at a non-dangerous spot. In this case, provide for a condensate trap and liquid stop valve in the exhaust line[7].

(10) Conduits for connecting lines have to be sealed gas- and liquid tight at the inlet and outlet points.

(11) For applications using a pressure compensating vessel in the measuring line, if suction and measuring line are connected together in a node point, the following shall apply:
Per 0.1 liter volume[8] of the pressure compensating vessel, the length of the measuring line (L_{max}) may only be a maximum of

VL 230 and VL 255	17 m (6 mm clearance)	39 m (4 mm clearance)
VL 320-420	21 m	47 m
VL 330	16 m	36 m
VL 410	12 m	28 m
VL 500	10 m	22 m
VL 570	8 m	18 m

NOTE: The lower edge of the pressure compensating vessel must not be lower than the node point, the upper edge of the pressure compensating vessel must not be more than 30 cm above the node point.
Per 10 ml of the condensate trap(s) mounted in the measuring line between pressure compensating vessel and leak detector, **L_{max} is reduced by**:
0.5 m (6 mm clearance)
1 m (4 mm clearance).

[7] Condensate trap and liquid stop valve are not required if the exhaust pipe ends above a liquid-proof area (e.g., filling area, leak containment room).
[8] Multiplying this volume leads to a multiplication of L_{max}. Dividing this volume leads to a division of L_{max}.

ALTERNATIVELY: In place of the pressure compensating vessel, the measuring line can be laid from the node point over 50% of the measuring line length (=L_{min}) with approx. 1% slope to the node point.

4.4. Mounting the probe (VL .. E ONLY)

4.4.1 Probe requirements

(1) Approval as overload protection or as leak probe is required.

(2) Voltage supply identical to voltage supply of the leak detector.

(3) Current consumption of the probe P < 200 W

(4) Dry relay contacts which open in the case of alarm.

(5) Other versions can be agreed with the manufactures, since adaptation could be necessary.

4.4.2 Probe in place of the liquid stop valve

(1) A probe can be integrated in the suction line as a component part of the installation kit in place of a liquid stop valve (agree version of installation kit (MBS) with the manufacturer). The probe can also be mounted as an additional fixture at the low point of the interstitial space.

(2) With this version the leak detector indicates that liquid (product or groundwater) is in the suction line (and thus usually in the interstitial space).

(3) This version can become necessary if
– the alarm signal is not possible due to the pneumatic principle
– the liquid to be monitored is extremely dangerous (e.g., potentially fatal).
– if escaping liquid (e.g., due to "just" sufficient resistance of the interstitial space) has to be established immediately.

4.4.3 Probe in addition to the leak detector for monitoring increase in liquid level

(1) Set up or mount the probe in the space to be monitored (dome or control shaft, leak tub, leakage containment) according to the manufacturer's instructions.

(2) Install the electrical supply line to the leak detector and connect it according to the instructions in chapter 4.7.

4.5. Mounting the solenoid valve(s) (VL .. E ONLY)

(1) The solenoid valves must be mounted as near to the interstitial space as possible. Pressure resistance, resistance to substances (incl. sealing materials), temperature range and protective rating (in the case of mounting in the open air) must be guaranteed.

(2) For VL .. E: Connect two solenoid valves (one each in the suction and measuring line) to the leak detector according to the instructions in chapter 4.7:
- Voltage supply: per solenoid valve 115 V (with 230 V supply) respectively per solenoid valve 12 VDC (with 24 VDC supply)
- Current consumption: 5 to 10 W

4.5.1 Activation or deactivation of the solenoid valve monitoring

(1) If solenoid valves (or one solenoid valve) are used, solenoid valve monitoring must be **ACTIVATED**: The coding plug must be inserted according to the photo. The photo shows an active solenoid valve monitoring case.

NOTE: If solenoid valve monitoring is not activated, the valve will not open, the start-up button will not work!

4.6. Selection of the electrical supply line (VL .. E ONLY)

4.6.1 Probe

(1) Cable length should not be longer than 30 meters[9]

(2) Recommended cable type: NYM 5 x 1.5 mm^2, LiYY 5 x 0.75 mm^2 with wire-end sleeves

4.6.2 Solenoid valve(s)

(1) Cable length should not be longer than 30 meters[10]

(2) Recommended cable type: NYM 3 x 1.5 mm^2, LiYY 3 x 0.75 mm^2 with wire-end sleeves

4.7. Electrical connection

(1) Voltage supply: see type plate.

(2) Firmly laid, i.e., no plug or switch connectors.

(3) Devices with plastic housing may only be connected with a fixed cable.

(4) Terminal assignment (see also SL-853 600 (VL ..) and SL-854 800 (VL .. E):

1	230 V respectively “+” with 24 VDC voltage supply
2	230 V respectively “-“ with 24 VDC voltage supply
3/4	Occupied (leak detector pump)
5/6	External signal (voltage supply in case of alarm, is switched off using "mute" button.
7/8	VL .. E ONLY connection of the solenoid valve(s)
11/12	Dry relay contacts, open in case of alarm and power failure
21/22	VL .. E ONLY connection of the dry relay probe contacts (contacts have to be open in case of alarm and power failure)[11] NOTE: When the device is delivered a bridge is used which must be removed when the probe is connected
X/X	Serial data transmission (no. 106 in the circuit diagrams)

(5) Close unused cable glands properly and professionally.

4.8. Installation examples

Installation examples are given in the appendix.

[9] The length is limited for EMC-related reasons, longer lengths only after consultation and agreement with the manufacturer.

[10] The length is limited for EMC-related reasons, longer lengths only after consultation and agreement with the manufacturer.

[11] 9/10 ONLY for probes requiring a voltage supply. E.g., not for floating switches.

The following notes must always be heeded:

<u>Note:</u> The connection of interstitial spaces is only permitted for battery tank plants and pipework UNDER the following conditions.

1. For tanks with suction line to the low point:
   The suction line must lead either in the interstitial space or on the outside of the tank (but then pressure-resistant) from the low point of the interstitial space to above the interstitial space and also above the max. tank filling level.
2. Installation example A – 01: Here, the probe is drawn with a dotted line for the version VL .. E in order to show the different possibilities.
3. Installation example H – 01: This series connection is **ONLY** permitted and possible for the tank type(s) listed in Appendix E.4.
4. Installation example K – 01: The exhaust pipe ends in a non-dangerous position.
   The following possibilities are available for monitoring these shafts:
   – Double-walled pipe around the hydraulic cylinder, suction line in the interstitial space leading to the low point.
   – Interstitial space between the single-wall pipe and hydraulic cylinder, with the suction line leading to the low point of the interstitial space.
   – Suction and measuring line connected to the highest point of the interstitial space. In addition, probe at the low point of the interstitial space. This means the shaft can be as deep as required.

5. <u>Start-up</u>

(1) Heed and observe specifications in chapter 4.

(2) Carry out pneumatic connection.

(3) Set up electrical connection, do not apply voltage supply yet.

(4) Close the housing cover.

(5) Apply voltage supply.

(6) Establish lighting up of operating and alarm lamp as well as the audible alarm signal. Press the "mute" button, the signal lamp "alarm" will blink.

(7) <u>Only VL .. E with solenoid valve</u>: carry out the start-up sequence (see chapter 3.5.2).

(8) Three-way valve 21 in position "III", connect measuring gauge. (cf. P-060 000)

(9) Apply vacuum to the system. To do this, the installation pump can be connected to the muff on three-way valve 20, position IV. Switch on the installation pump. The interstitial space will be evacuated. Monitor the vacuum build-up on the measuring gauge.
NOTE: If no pressure is built up with the installation pump connected, the leak must be located and eliminated (if necessary, check the feed capacity of the pump and/or the position of the three-way valve).

(10) Once the leak detector has reached operating vacuum (pump in the leak detector switches off), the three-way valve must be set to position I, the installation pump switched off and removed.

(11) Three-way valve 21 in position "I", remove the measuring gauge.

(12) Carry out the functional test according to section 6.4.

6. Operating instructions

6.1. General instructions

(1) If the leak detection system is installed tightly and correctly then it can be assumed that the leak detector is working in the range of control.

(2) Frequent switching on, or continuous running of the pump indicates leaks which must be eliminated within a reasonable period of time.

(3) In the case of an alarm there is always either a major leak or a fault. The cause must be established quickly and the problem eliminated.

(4) The leak detector must be disconnected from the mains for any repair work.

(5) Use a dry cloth to clean the leak detector with a plastic housing.

(6) Current interruptions are indicated by the "operation" signal lamp going out. The alarm signal is triggered via the dry relay contacts (if used to extend the alarm).
Following the current interruption, the green signal lamp lights up again, the alarm signal is switched off via the potential-free contacts (unless the pressure has fallen below the alarm pressure during power failure). Carry out the start-up sequence for leak detectors with connected solenoid valve(s).

(7) CAUTION: The device may not be adequately protected if it is not used as specified by the manufacturer.

6.2. Intended use

- Double-walled tanks according to chapter 2, under the listed conditions
- Grounding according to valid regulations
- Leak detection system is tight according to the table in the documentation
- Leak detector is mounted outside the potentially explosive area
- Conduits into and out of dome or control shafts are closed airtight
- Electrical connection cannot be switched off

6.3. Maintenance

(1) Maintenance work and functional tests may only be carried out by trained staff[12].

(2) Work is carried out once a year to assure functional and operating safety.

(3) Extent of the tests is described in chapter 6.4.

(4) It must be checked whether the conditions described in chap. 4 to 6.3 are being observed.

(5) Disconnect from the mains before opening the leak detector housing.

6.4. Functional test

Tests of the functional and operating safety must be carried out

- after every start-up,
- acc. to chapter 6.3[13],
- after every case of troubleshooting.

[12] For Germany: qualified knowledge or under the responsibility of a qualified person.
For Europe: Authorisation from the manufacturer.

[13] For Germany: heed state-specific regulations accordingly (e.g., AwSV)

6.4.1 Extent of the test

(1) If necessary, discuss the tasks to be carried out with the person responsible on-site.

(2) Heed the safety instructions regarding contact with the stored products present.

(3) Monitoring and emptying the condensate traps if necessary (6.4.2).

(4) Testing the probe if appropriate (chapter 6.4.3)

(5) Check the free passage of air in the interstitial space (chapter 6.4.4).

(6) Test the switching values with the interstitial space (chapter 6.4.5).
Alternatively: test the switching values using the test device (chapter 6.4.6).

(7) Test the lift of the vacuum pump (chapter 6.4.7).

(8) Check tightness of the leak detection system (chapter 6.4.8).

(9) Set up operating state (chapter 6.4.9).

(10) A qualified person must fill out a test report confirming function and operational safety.

6.4.2 Checking and emptying the condensate traps if necessary

(1) If there are shut-off valves on the interstitial space, close these.

(2) Three-way valve 20 and 21 to position IV to ensure aeration of the connecting lines.

(3) Open condensate traps and empty them. NOTE: Condensate traps can contain storage product(s), make sure you take suitable precautions.

(4) Close condensate traps.

(5) Three-way valves 20 and 21 to position I.

(6) Open shut-off valves on the interstitial space.

6.4.3 Testing the probe

(1) If there are shut-off valves on the interstitial space, close these.
(Not applicable when the probe is installed separately from the leak detector. Also applicable for section (2) and section (6))

(2) Three-way valve 20 in position IV, thus aeration of the connecting line.

(3) Remove probe and check reaction in storage products or water.

(4) Establish optical and audible alarm signal on the leak detector. Press the "mute" button if necessary.

(5) Clean/dry and insert the probe.

(6) Move three-way valve 20 to position I and open the shut-off valves.

6.4.4 Checking the free passage of air in the interstitial space

(1) Connect the measuring gauge to three-way valve 21, then position III.

(2) Three-way valve 20 to position IV, thus aeration of the interstitial space.

(3) Determine the drop in pressure on the measuring gauge. If there is no drop in pressure, establish the cause and eliminate it.

(4) Three-way valve 20 and 21 to position I.

(5) Remove measuring gauge.

6.4.5 Testing the switching values using the interstitial space

(1) Connect the measuring gauge to three-way valve 21 and three-way valve 21 in position III.

(2) Three-way valve 20 to position IV, thus aeration of the interstitial space.

(3) Determine switching values "pump ON" and "alarm ON" (with optical and audible alarm signal). Note values.

(4) Press the "mute" button if necessary.

(5) Three-way valve 20 to position I (if necessary, carry out the start-up sequence (see chapter 3.5.2)) and determine switching values "alarm OFF" and "pump OFF". Note values.

(6) The test is considered passed if the switching values measured are within the specified values.

(7) Three-way valve 21 to position I. If necessary, press "mute" button again.

(8) Remove the measuring gauge.

6.4.6 Testing the switching values using the testing device (P-115 392)

(1) Connect the testing device with both hose-ends on one of the free muffs of three-way valves 20 and 21 respectively.

(2) Connect the measuring gauge to the T-piece of the testing device.

(3) Close the needle valve of the testing device.

(4) Three-way valves 20 and 21 to position II. Operating pressure is built up in the test tank.

(5) Aerate using the needle valve, determine the "pump ON" and "alarm ON" (optical and audible) switching values. Note values.

(6) Press the "mute" button if necessary.

(7) Carry out the start-up sequence if necessary.

(8) Slowly close the needle valve and determine the switching values "alarm OFF" and "pump OFF".

(9) The test is considered passed if the switching values measured are within the specified values.

(10) Three-way valves 20 and 21 to position I. Press the "mute" button if appropriate.

(11) Remove the testing device.

6.4.7 Testing the lift of the vacuum pump

(1) Connect a measuring gauge to three-way valve 20. Three-way valve 20 to position II.

(2) Three-way valve 21 to position II, thus aeration of the pressure switch, the alarm is triggered, the pump runs (carry out the start-up sequence, if necessary, to make the pump run)

(3) Read off the lift of the pump on the measuring gauge.

(4) The test is considered passed when the pressure value reached is
> 150 mbar (Type 34 and 30-70),
> 430 mbar (Type 230, 255)
> 500 mbar (Type 330, 230-340),
> 600 mbar (Type 410)
> 680 mbar (Type 500) or
> 750 mbar (Type 570).

(5) Three-way valve 20 and 21 to position I.

(6) Remove the measuring gauge.

6.4.8 Tightness test on the leak detection system

(1) Check that all the shut-off valves between the leak detector and interstitial space are open.

(2) Connect the measuring gauge to three-way valve 21, position III.

(3) For the tightness test, the vacuum pump must have reached the "pump OFF" switching value. Wait for possible pressure compensation and then begin with the tightness test.

(4) It must be evaluated as positive if the values in the following table are observed. A higher drop in pressure means increased stress on the wear parts.

Volume of interstitial space in liters	1 mbar drop in pressure in
100	9 minutes
250	22 minutes
500	45 minutes
1000	1.50 hours
1500	2.25 hours
2000	3.00 hours
2500	3.75 hours
3000	4.50 hours
3500	5.25 hours
4000	6.00 hours

(5) Test valve to position I, remove measuring gauge.

6.4.9 Setting up the operating condition

(1) Seal the housing.

(2) Seal the shut-off valves (between leak detector and interstitial space) in the open position for every interstitial space connected.

6.5. Alarm

(1) In case of alarm the "alarm" signal lamp lights up and the audible signal sounds.

(2) If available, close the shut-off valves in the connection line between interstitial space and leak detector.

(3) Switch off the audible signal by pressing the "mute" button. The button will light up.

(4) Determine the cause of the alarm signal according to the table in chapter 3.5.1.

(5) Inform the installation company (detailing the cause of the problem if possible).

(6) The installation company has to determine and eliminate the cause.

(7) Carry out the functional test according to chapter 6.4, observing the conditions specified in chapters 4 to 6.2.

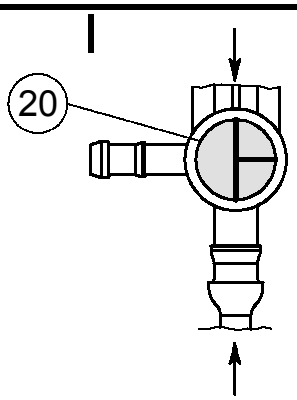
7. Marking

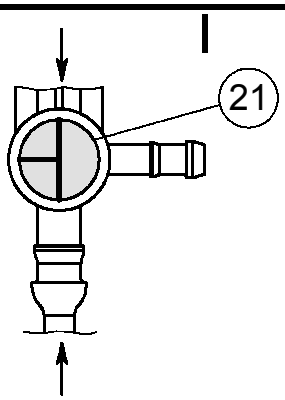
- Type
- Electrical data
- Manufacturer or manufacturer's mark
- Model year (month/year)
- Serial number
- Statutory marks

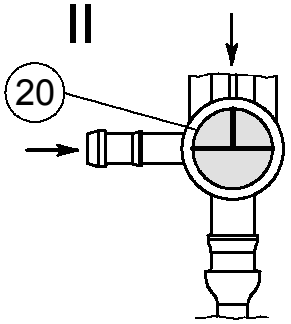
8. Index used

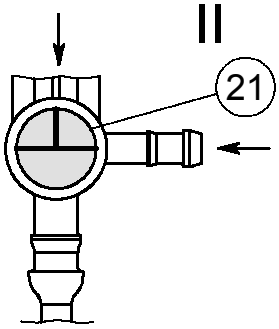
01 Signal lamp "alarm", red
01.2 Signal lamp "alarm 2", red (leak probe)
02 Shut-off valve
03 Exhaust line
09 Signal lamp "operation", green
20 Three-way valve in the suction line
21 Three-way valve in the measuring pipe
22 Needle valve
24.1 Fine-wire fuse T 1 A (230 V version)
T 1 A (24 VDC version)
24.2 Fine-wire fuse T 250 mA (230 V version)
T 1 A (24 VDC version)
24.3 Fine-wire fuse T 1 A (230 V version)
T 1 A (24 VDC version)
27 Liquid stop valve
27* Liquid stop valve, connection against the block direction
30 Device housing
33 Condensate trap
36 "Start-up" button
43 Measuring pipe
44 Solenoid valve
52 Measuring gauge
57 Test valve
59 Relay
60 Vacuum pump
61 Check valve with filter
68 Suction line
69 Buzzer
71 "Mute" button
73 Interstitial space
74 Connection line
76 Main PCB
84 Test tank 1 liter
85 Test muff for measuring gauge
88 Double-walled pipe
89 Double-walled battery tank
93 Tank ventilation
95 Pressure compensating vessel

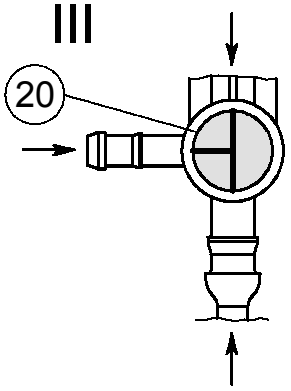
96 Node point
97 Leak probe (only VL .. E)
98 Sealing plug
101 Suction line leading to low point
102 Pressure sensor
105 Control unit
106 Contacts for serial data transmission
111 Cooling section
112 Insulation

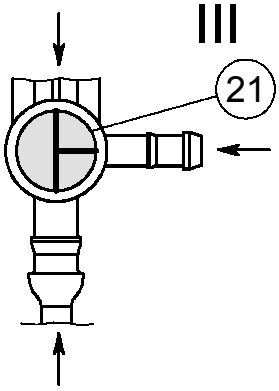


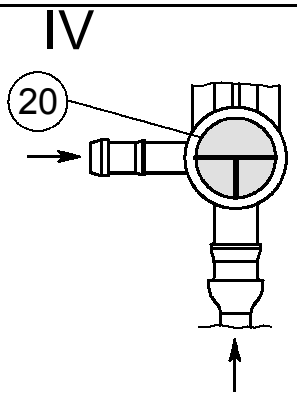


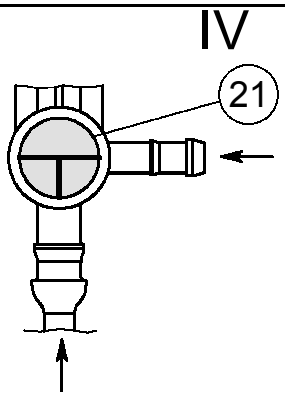












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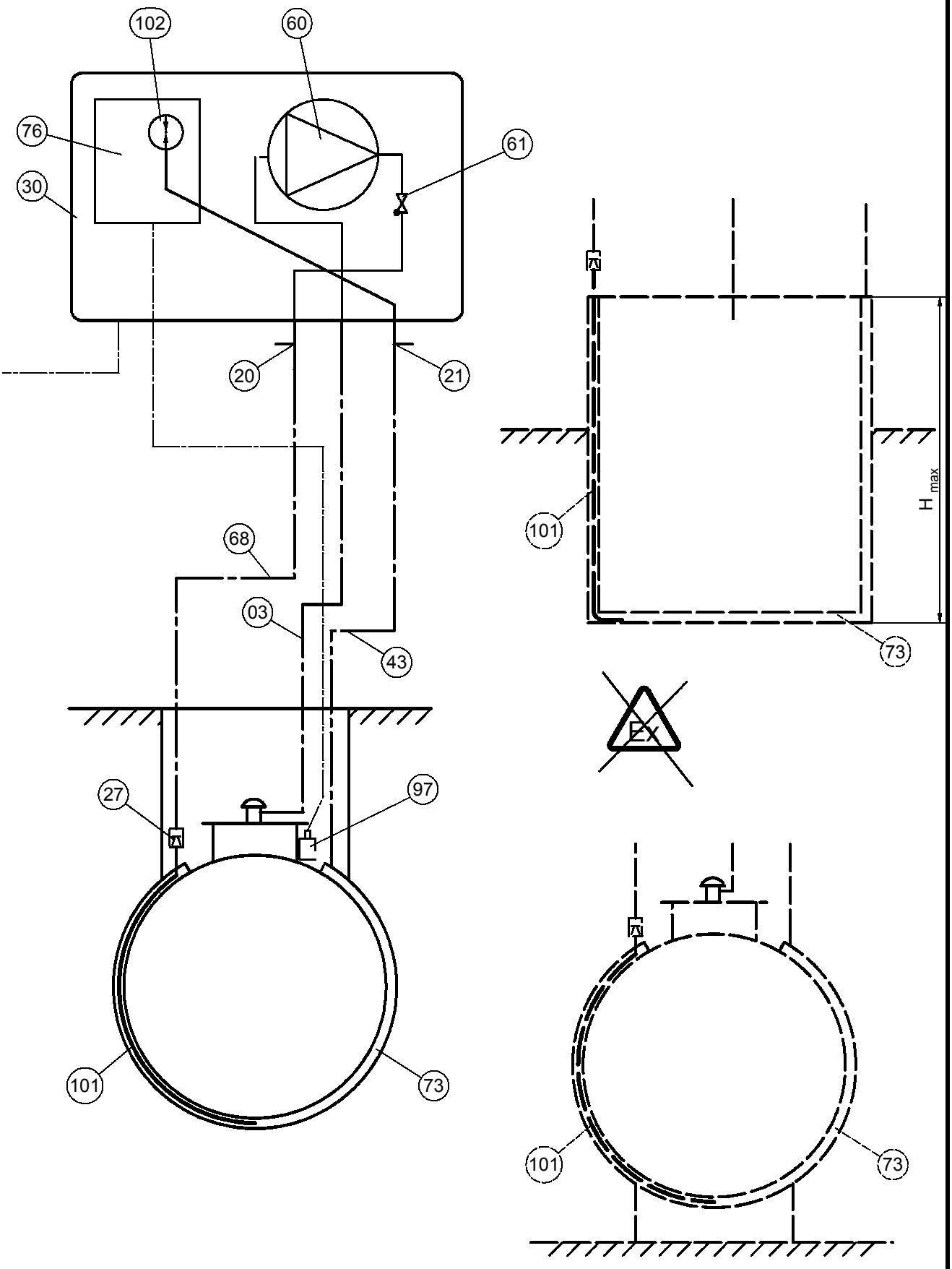

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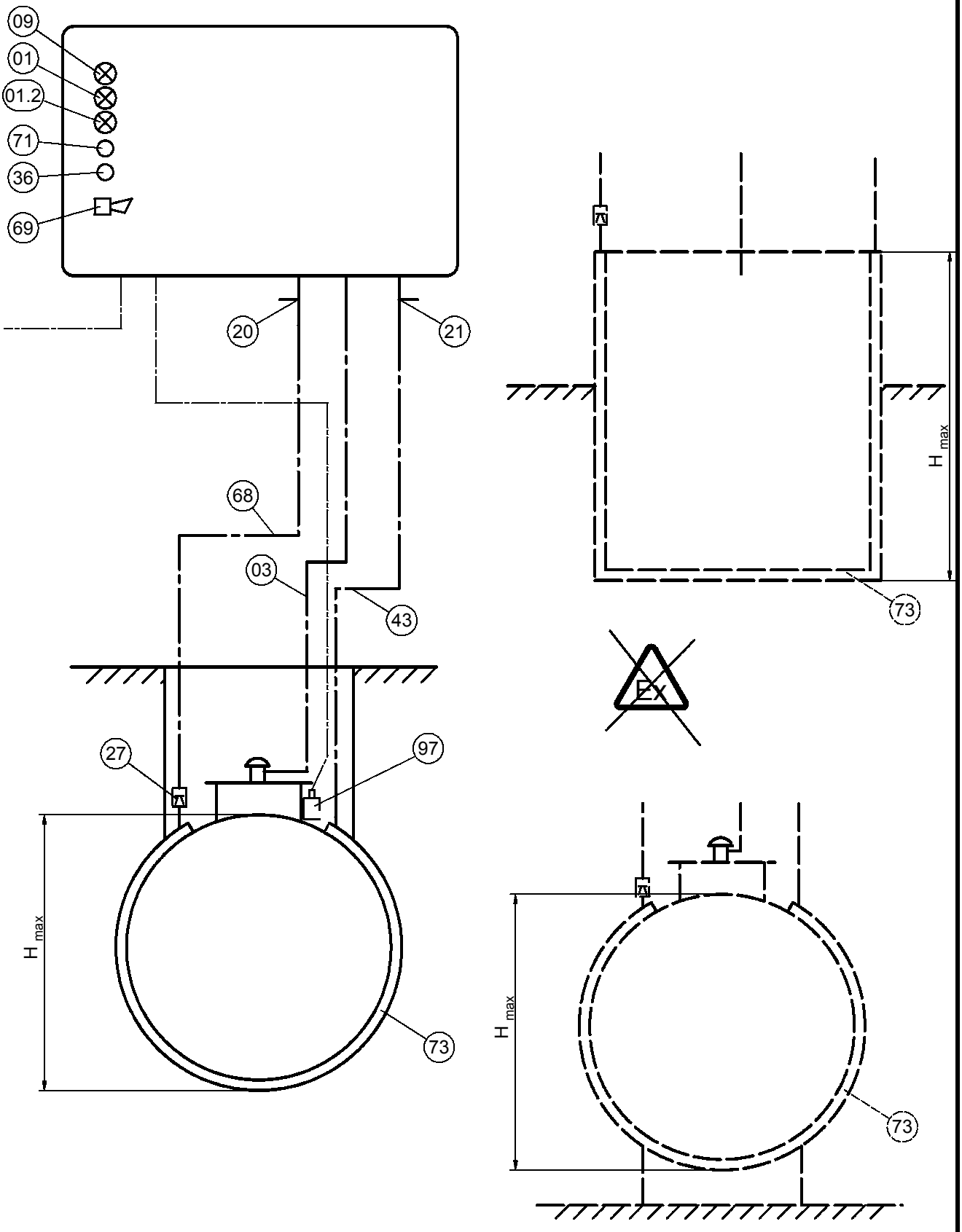

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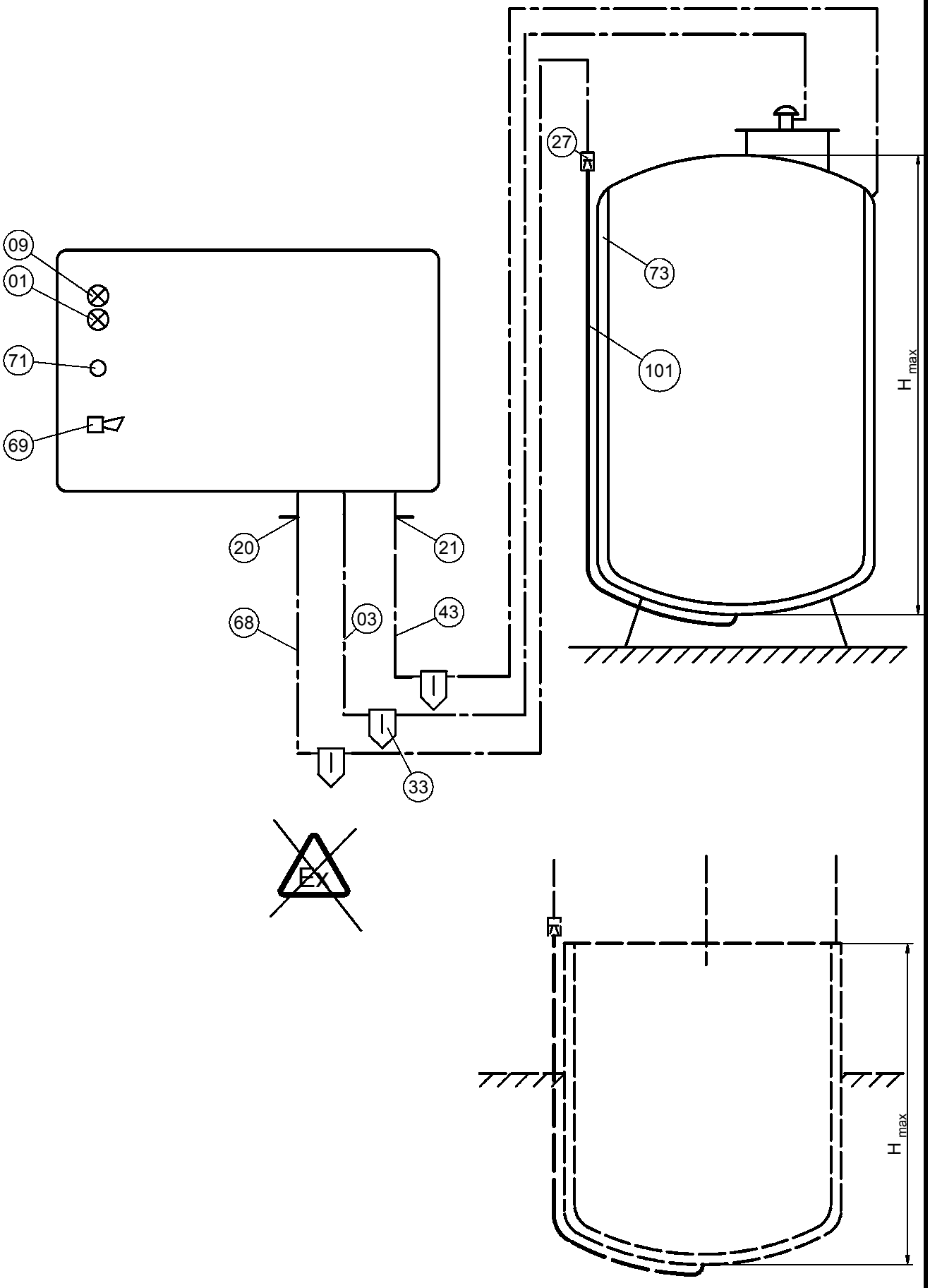

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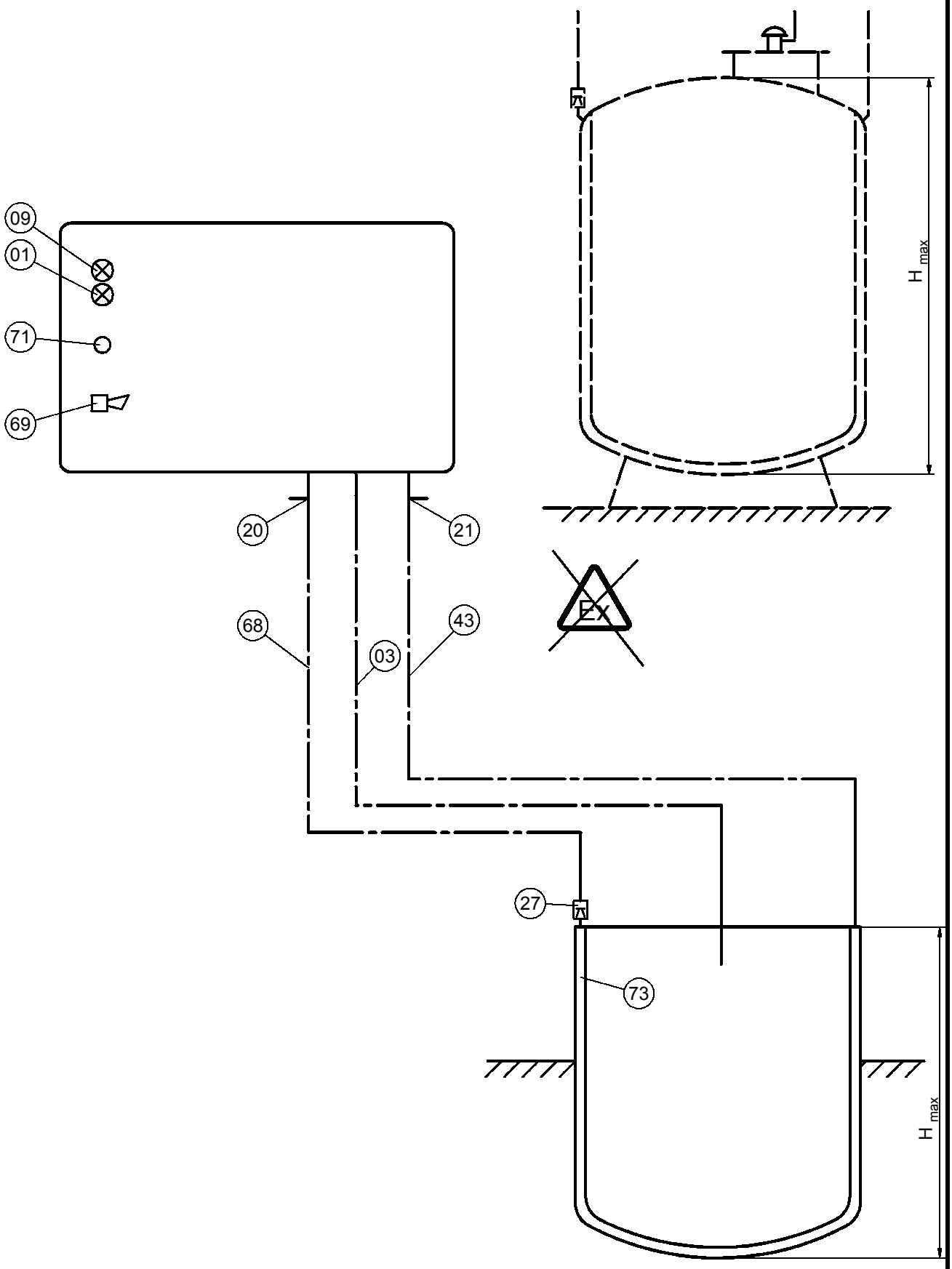

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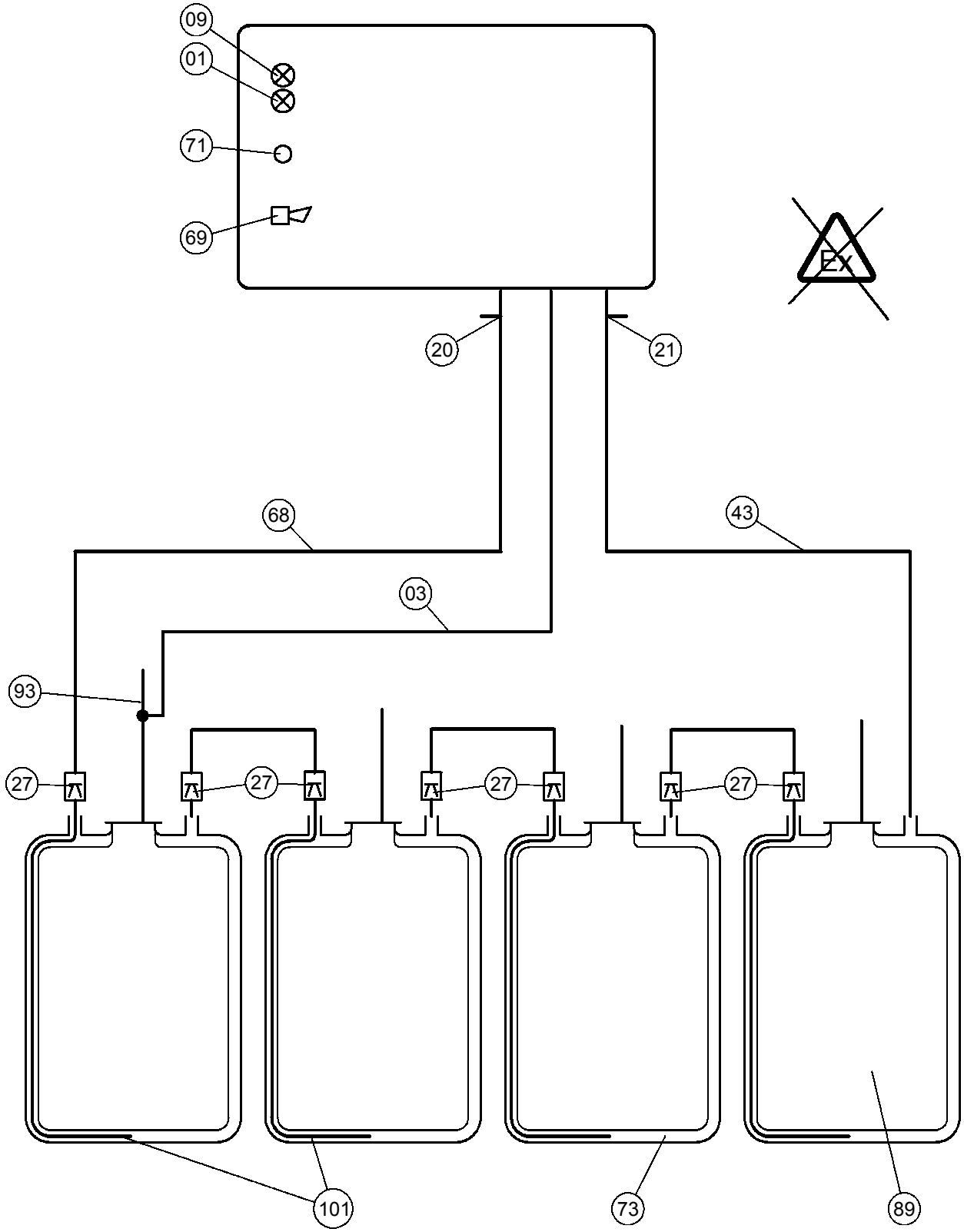

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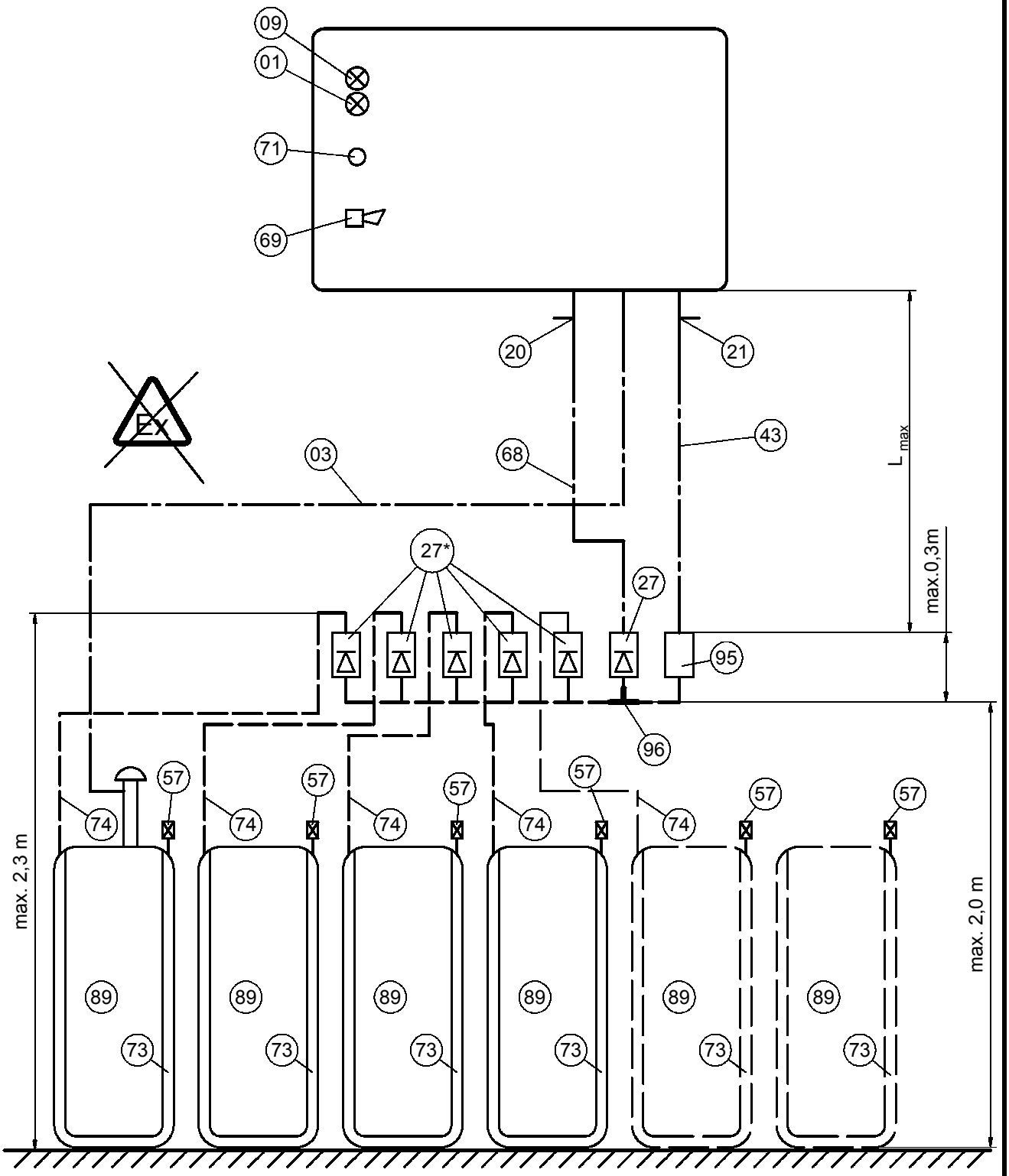

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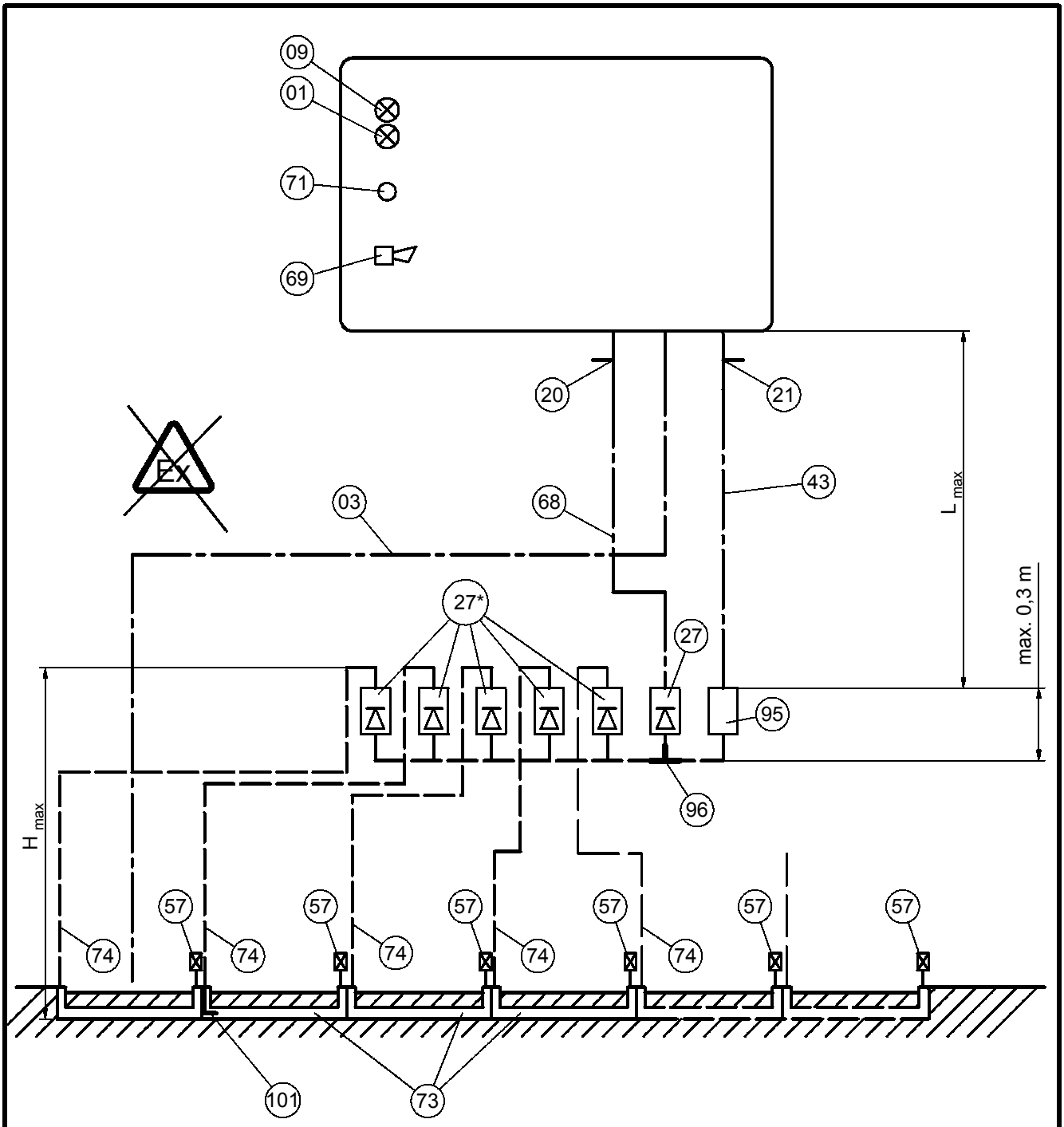

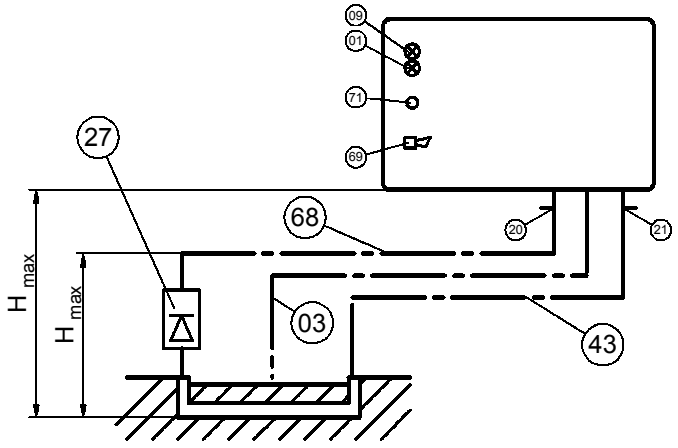

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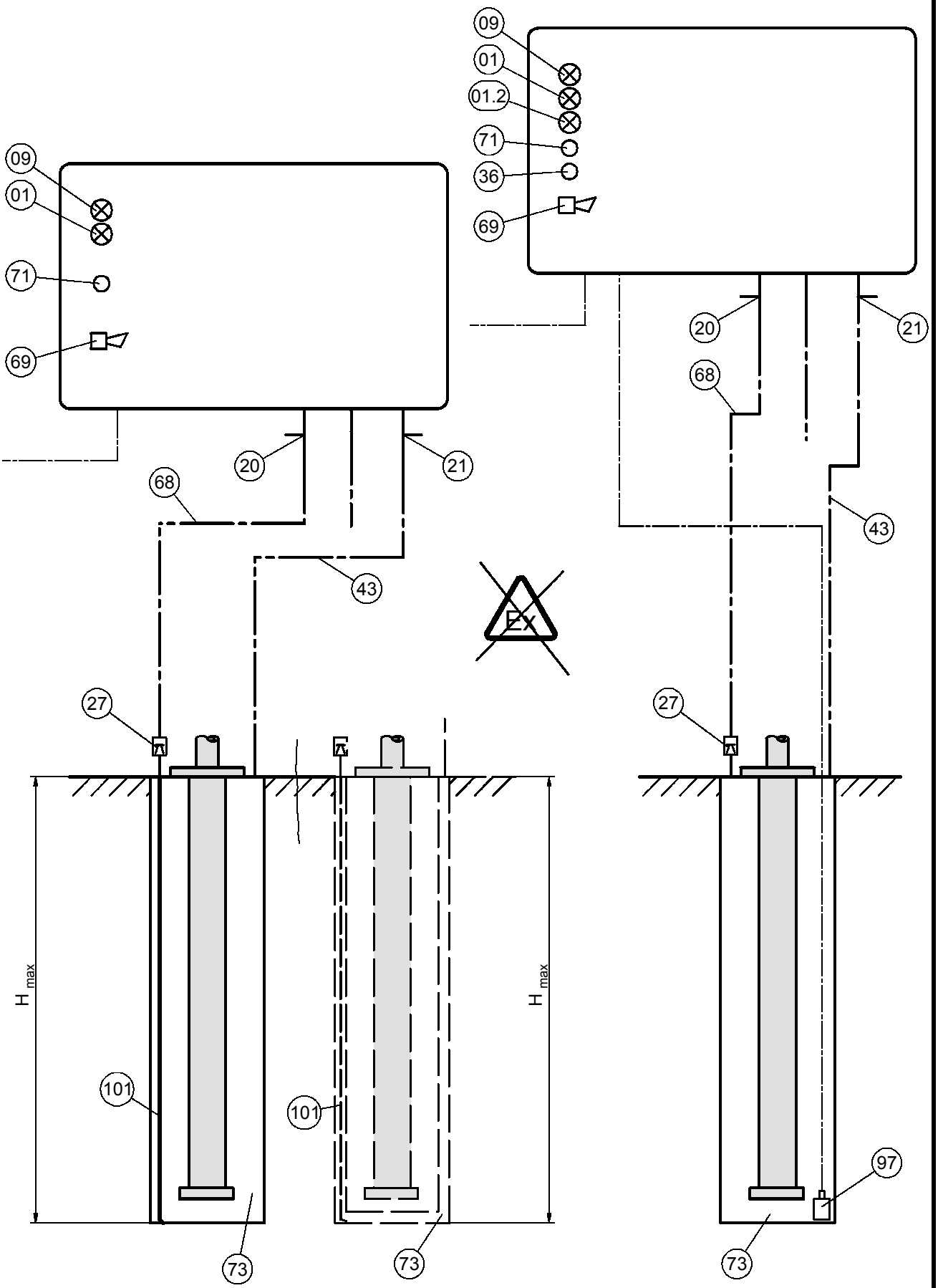

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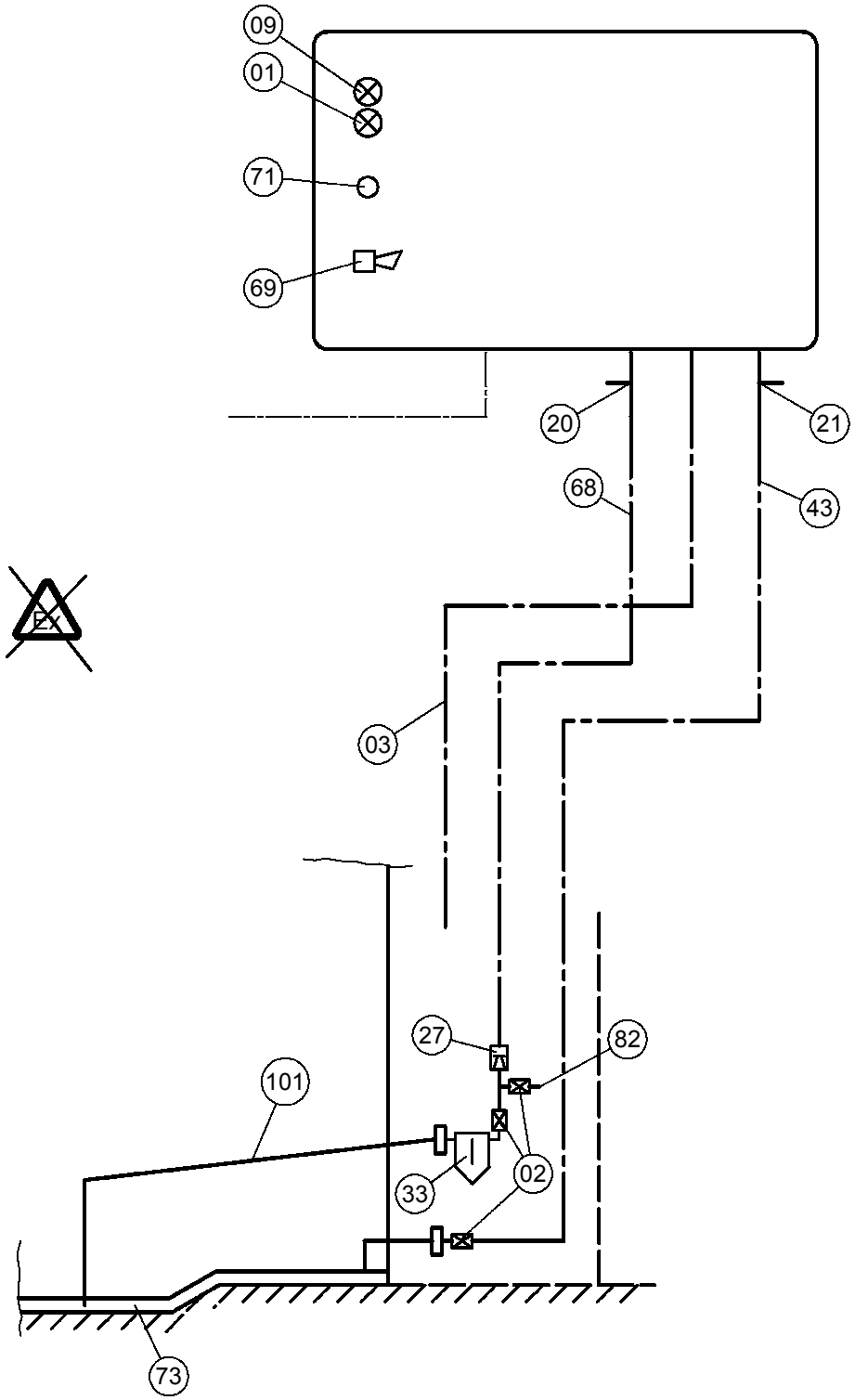

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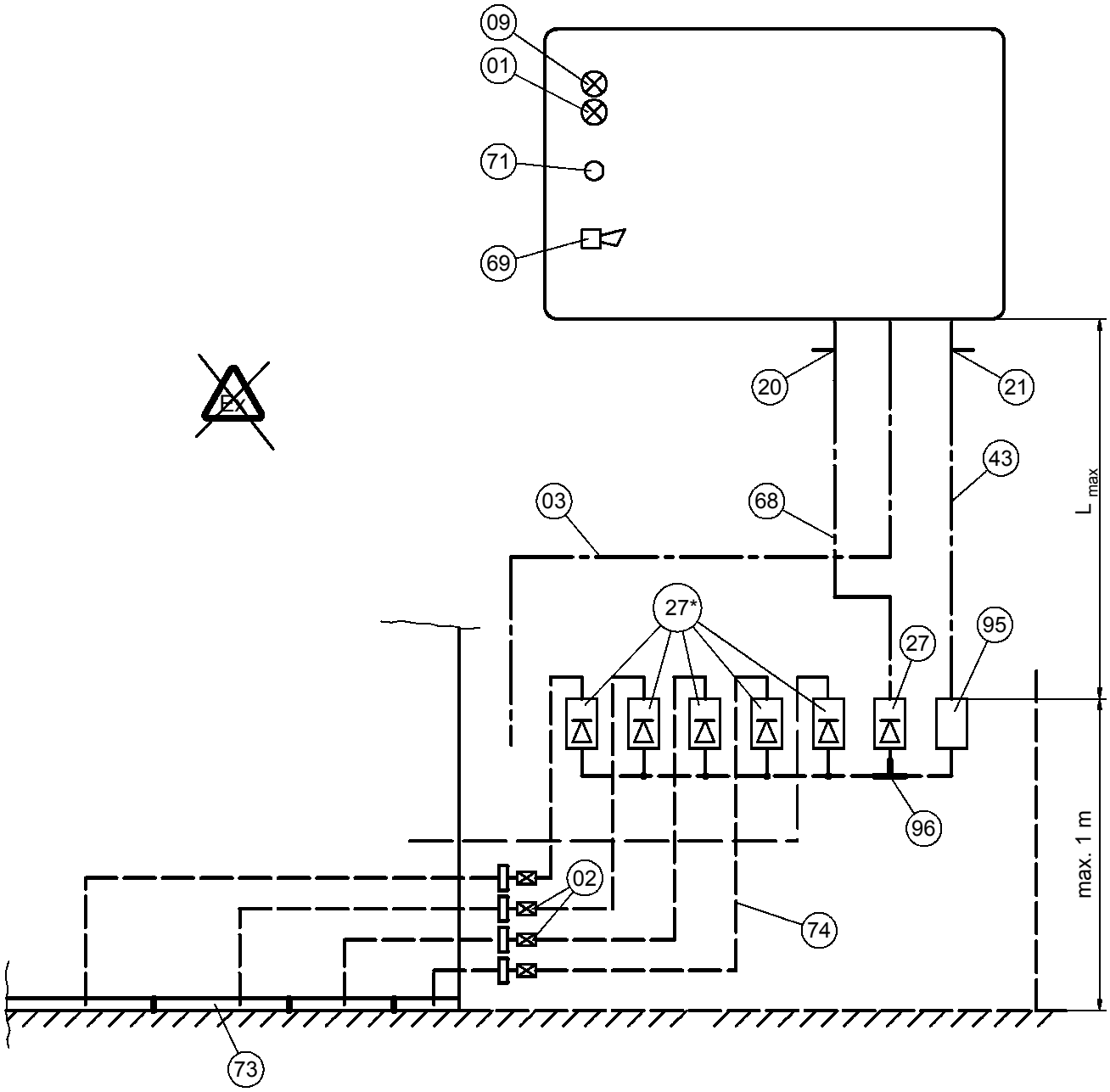

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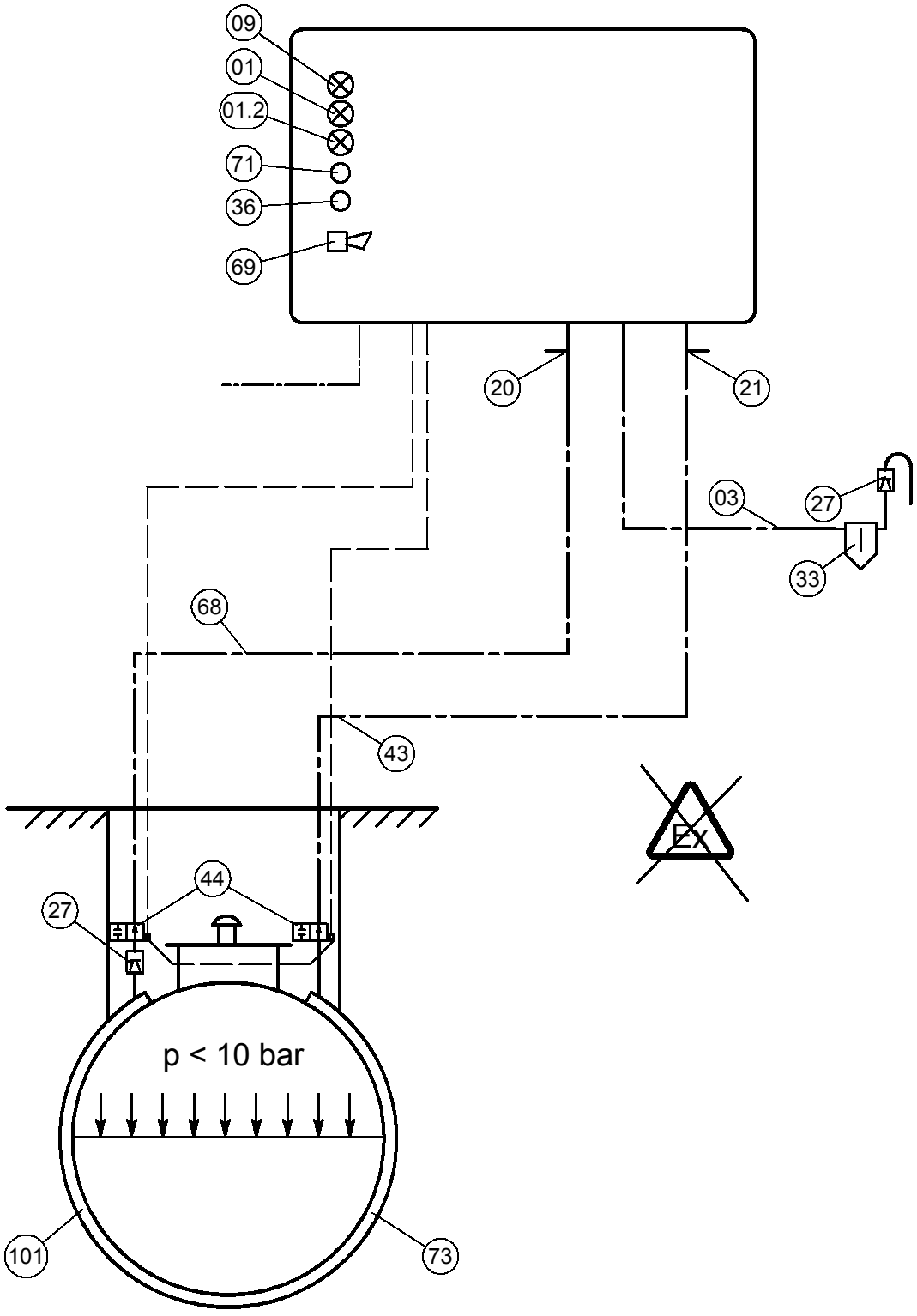

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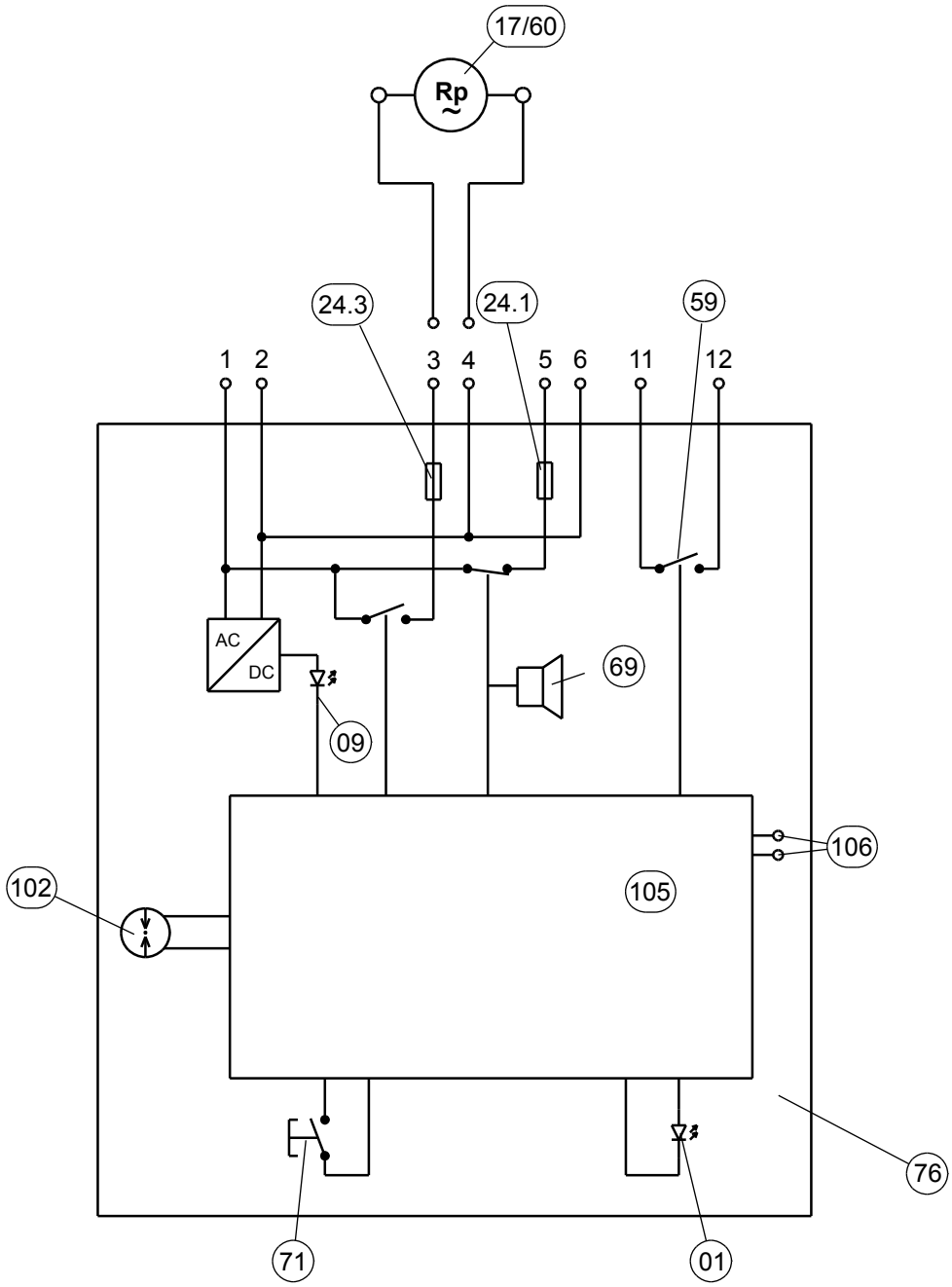

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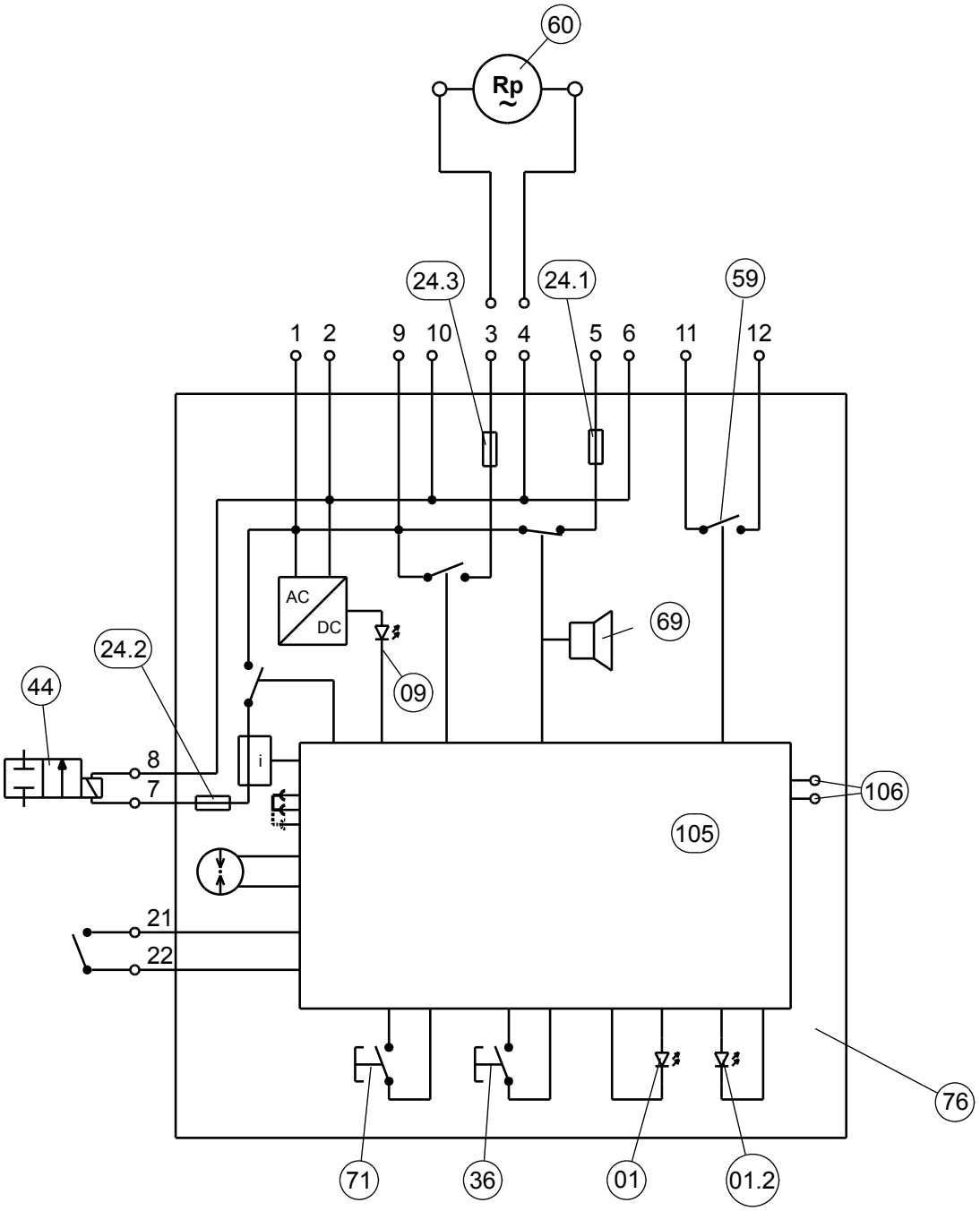

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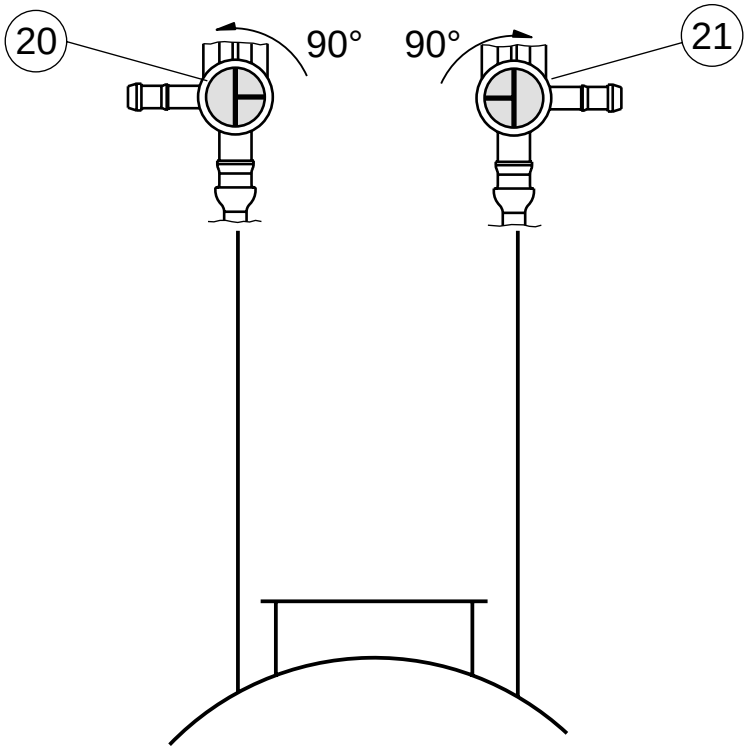

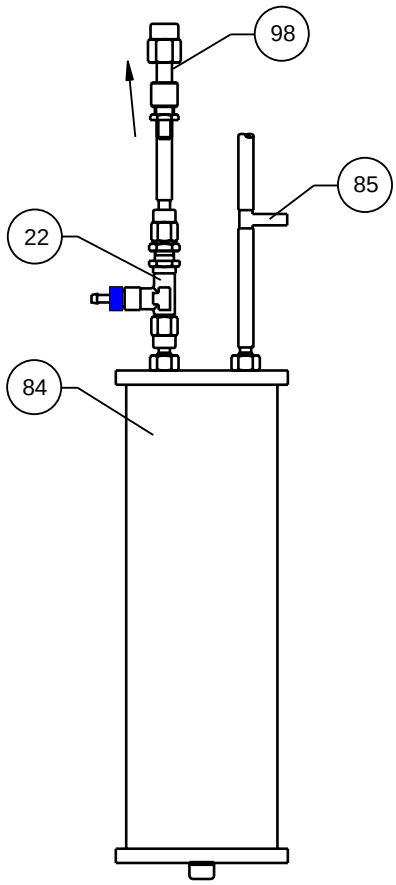

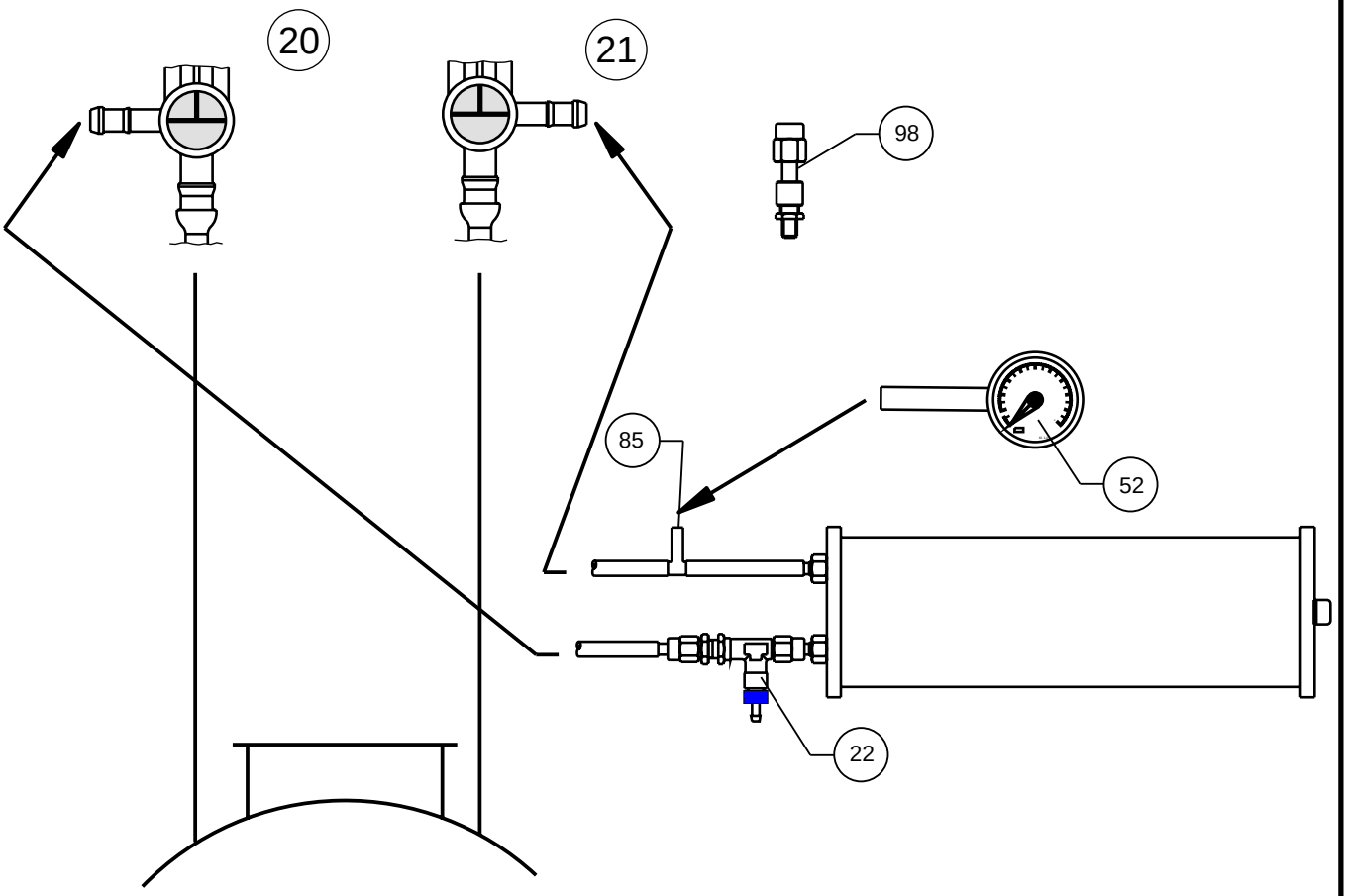

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P - 115 392

Use of the vacuum leak detector VL .. on interstitial spaces filled with leak detection liquid

A.1 Pre-conditions

(1) Only leak detectors with suitable alarm pressures may be used, depending on the diameter of the tank and the density of the stored product.

(2) The procedure described in the following is designed for tanks in compliance with DIN 6608.

(3) If this procedure is carried out on other tanks, agreement with the local authority responsible is required in individual cases.

A.2 Preparation

(1) Dismount the leak detector on liquid basis.

(2) Suction the leak detection liquid out of the interstitial space:

(3) Suction procedure:
– Mount the adapters for suction and measuring line
– Connect the installation pump to the suction line connection via an intermediate tank[1]
– **Suction off until there is no more liquid drawn in**
– Connect the vacuum measuring gauge to the measuring line connection
– Continue the evacuation process (at approx. 500 mbar) until no more liquid is suctioned
– Repeat the evacuation process after a break if necessary to make sure a gas buffer is created above the remaining leak detection liquid.

A.3 Mounting and starting-up the leak detector

(1) A gas buffer has been created above the leak detection liquid due to the suction process.

(2) Mount the leak detector according to the documentation and start operation.

(3) Carry out a functional test on the leak detector.

A.4 Alarm

(1) An alarm can occur if insufficient leak detection liquid was suctioned off and the level of liquid has increased in the interstitial space due to an increase in temperature.
Remedy:
Create a new air buffer above the leak detection liquid.

(2) An alarm can also be triggered by the penetration of groundwater / product to be stored or air in the interstitial space and an increase in liquid level connected with this.
Remedy:
Look for the leak and eliminate if necessary, then put the leak detector back into operation. If the leak cannot be located or repaired, consult the specialist responsible on site to clarify further procedure.

[1] The liquid suctioned off is collected in this tank.

E.1 H_{max} Depending on density

In this appendix, VL .. stands for all versions, i.e. also for VLR .. or VLR ../E

Density of the product stored [kg/dm³]	$H_{max.}$ [m]						
	VL 230	VL 255	VL 330	VL 410	VL 500	VL 570	
0.8	2.6	2.9	3.8	4.8	6.0	6.9	Aboveground tank(s) and pipe(s)
0.9	2.3	2.6	3.4	4.3	5.3	6.1	
1.0	2.0	2.3	3.1	3.9	4.8	5.5	Above- and under-ground tank(s) / pipe(s)
1.1	1.9	2.1	2.8	3.5	4.4	5.0	
1.2	1.7	1.9	2.6	3.2	4.0	4.6	
1.3	1.6	1.8	2.4	3.0	3.7	4.2	
1.4	1.5	1.6	2.2	2.8	3.4	3.9	
1.5	1.4	1.5	2.0	2.6	3.2	3.7	
1.6	1.3	1.4	1.9	2.4	3.0	3.4	
1.7	1.2	1.4	1.8	2.3	2.8	3.2	
1.8	1.1	1.3	1.7	2.2	2.7	3.1	
1.9	1.1	1.2	1.6	2.0	2.5	2.9	

E.2 Max. Tank height depending on density

Density of the product stored [kg/dm³]	$H_{max.}$ [m]							
	VL 34	VL 230	VL 255	VL 330	VL 410	VL 500	VL 570	
0.8	7.5	17.3	19.1	23.4	23.8	24.5	24.2	Above-ground tanks
0.9	6.6	15.3	17.0	20.8	21.1	21.8	21.5	
1.0	6.0	13.8	15.3	18.7	19.0	19.6	19.4	Above- and underground tanks
1.1	5.4	12.6	13.9	17.0	17.3	17.8	17.6	
1.2	5.0	11.5	12.8	15.6	15.8	16.4	16.2	
1.3	4.6	10.6	11.8	14.4	14.6	15.1	14.9	
1.4	4.3	9.9	10.9	13.4	13.6	14.0	13.8	
1.5	4.0	9.2	10.2	12.5	12.7	13.1	12.9	
1.6	3.7	8.6	9.6	11.7	11.9	12.3	12.1	
1.7	3.5	8.1	9.0	11.0	11.2	11.5	11.4	
1.8	3.3	7.7	8.5	10.4	10.6	10.9	10.8	
1.9	3.1	7.3	8.1	9.8	10.0	10.3	10.2	

E.3 Tanks according to DIN 6618 T2: 1989 and tubs with vaulted base and the same dimensions

Diameter [mm]	Height [mm]	Max. density of the product stored [kg/dm^3]						
		VL 34	VL 230	VL 255	VL 330	VL 410	VL 500	VL 570
1600	≤ 2 820	≤ 1.9	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 3 740	≤ 1.6	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 5 350	≤ 1.6	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 6 960	≤ 1.6	≤ 1.9	≤ 1.9	≤ 1.9			
2000	≤ 5 400	≤ 1.4	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 6 960	≤ 1.4	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 8 540	≤ 1.4	≤ 1.9	≤ 1.9	≤ 1.9			
2500	≤ 6 665	≤ 1.0	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 8 800	≤ 1.0	≤ 1.9	≤ 1.9	≤ 1.9			
2900	≤ 8 400	≤ 0.9	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 9 585	≤ 0.9	≤ 1.9	≤ 1.9	≤ 1.9			
	≤ 12 750	≤ 0.8	≤ 1.2	≤ 1.2	≤ 1.6			
	≤ 15 950	-	≤ 1.0	≤ 1.0	≤ 1.2			

E.4 Series of interstitial spaces in battery tanks

- From Messrs Berolina Polyester GmbH & Co. KG according to General Approval No. Z-40.11-165 from the Building Inspection Authorities.

Technical data

1. General data

Temperature range (operation and storage)	Plastic housing Stainless-steel h.	0–40 °C -40 °C–60 °C
Max. height for safe operation		≤ 2000 m above sea level
Max. relative humidity for safe operation		95 %
Buzzer volume		> 70 dB (A) in 1 m
Housing protection class	Plastic housing Stainless-steel h.	IP 30 IP 66
Version with solenoid valve		< 10 bar (pressure in inner tank)

2. Electrical data

Electrical supply (without external signal)			230 VAC, 50 Hz, 50 W 24 VDC, 50 W
Supply tolerance (network)			± 10 %
Switch contact load, terminal strips AS (5 and 6)	230 VAC	max: min:	230 VAC, 50 Hz, 200 VA 20 mA
	24 VDC	max:	24 VDC, 50 VA
Switch contact load, dry relay contacts (Terminals 11 and 12)		max: min:	230 VAC, 50 Hz, 3 A 6 V / 10 mA
External fuse for the leak detector			max. 10 A

Note: Acts as a separating point for the device and should be attached as close as possible!

Overvoltage category	2
Degree of soiling	PD2

3. Pneumatic data (requirements concerning the test measuring gauge)

Nominal size	min. 100
Accuracy class	min. 1.6
Scale end value	-600 mbar / -1000 mbar

4. Data for applications that fall under the Pressure Equipment Directive (PED) in case of an error

Note: The leak detector, installation kits, and manifolds are pressure accessories without a safety function in case of an error of the monitored system.

Volume leak detector:	0,05 liter
Max. operating pressure in case of an error - with solenoid valve (MV):	 10 bar
Volume installation kit:	< 1,67 liter
Max. operating pressure in case of an error:	25 bar

Evaluating the display for the function "Tightness test"

Chapter 3.5.2 described "Checking the tightness of the monitored system". This function can be used to obtain an indication of the tightness of the monitored system.

This is only possible if the switching value "Alarm OFF" has been exceeded. It can be repeated several times in succession.

This check is advisable **before** carrying out a recurrent function test on a leak detector, to see directly whether there is any need to look for leaks.

After pressing the button, this is confirmed by a brief audible signal which can be heard once, followed by a flashing signal, i.e. the Alarm LED flashes briefly to indicate the tightness as follows:

Number or flashes	Evaluation of the tightness
0	Very tight
1 bis 3	Tight
4 bis 6	Sufficient tight
7 bis 8	Maintenace recommended
9 bis 10	Maintenace highly recommended

The smaller the above value, the more tight is the system. The meaningfulness of this value naturally also depends on temperature fluctuations and should therefore be considered to be an indicative value.

Using the VL .. underpressure leak detector on tanks which have been allowed to warm up

The following example applications are described in this appendix:

W.1: Tank for storing liquids which are viscous or have a tendency to solidify at ambient temperature (temperatures >50°C and <150°C), and where a sufficient length of the measuring line has been routed inside the tank insulation, or for tanks used to store liquids which remain thin at ambient temperature.

W.2: Tank for storing liquids which are viscous or have a tendency to solidify at ambient temperature (temperatures >50°C and <150°C), and where only a short length of the measuring line has been routed inside the insulation.

W.3: Tanks which are filled with hot product quickly; in other words, the temperature of the filled product is more than 25°C higher than the temperature of the tank (worst case scenario), introducing the risk of false alarms.

The design and dimensioning of the leak detector for a heated tank (chapters W.1 and W.2) is significant on account of the temperature resistance of the leak detector components used. In these applications, either a sufficient cooling section or a system of leak sensors in conjunction with solenoid valves (instead of a liquid stop valve) needs to be used in order to ensure that alarms will be triggered correctly.

Tanks which are filled with hot products (chapter W.3) experience a change in temperature in the interstitial space and therefore a change in pressure (drop in underpressure). False alarms which might be triggered due to this rise in pressure need to be avoided if at all possible.
Both aspects can even be significant simultaneously (particular care must be taken to monitor the leak detector system especially when heating or filling a tank for the first time)[1].

The interstitial spaces of the above tanks should be dry prior to starting up the leak detector (if they are not, they should be dried in order to ensure that the leak detector will function correctly).

W.1 Tanks with heating (and insulation) at temperatures > 50°C and < 150°C (design with cooling section)

(1) This design requires that the parts of the interstitial space which are used for pressure reduction[2] are sufficiently heated or that the product inside the tank remains sufficiently thin at ambient temperature.

(2) Check whether special switching values might be necessary (see W.3).

(3) A cooling section approx. 3 m in length (spiralled pipe) is installed between the mounting set and the liquid stop valve in order to prevent impermissible increases in temperature at the liquid stop valve. In most cases the liquid stop valve is then installed underneath the leak detector.

(4) Metal pipes have to be used for reasons associated with temperature.

W.2 Tanks with heating (and insulation) at temperatures > 50°C and < 150°C (design with sensor in suction line)

(1) Check whether special switching values might be necessary (see W.3).

[1] Cases have even been known of overpressure caused by heat rise, introducing the risk of damage to the interstitial space.
[2] Volume displacement in the event of a liquid leak in the interstitial space/measuring line.

(2) Selection of the lines connecting the mounting set and the leak detector.
Use of metal pipes, Cu or VA pipes. Plastic pipes are not suitable.
The between the leak detector and the mounting set must be at least 3 m in length. This will ensure that the warm (hot) air extracted from the interstitial space can cool down before it reaches the leak detector.

(3) Installing the leak detector.
The leak detector (including the solenoid valves in the suction and measuring lines) has to be installed so that the ambient temperature of 60°C (e.g. radiant heat from the tank) is not exceeded.

(4) Installation of the mounting set
The ambient temperature at the mounting kit must not exceed 100°C and the temperature of the medium must not exceed 150°C.
If the mounting set needs to be installed inside the tank insulation, care must be taken to ensure that this does not impair accessibility (so that the annual functional test of the leak detector can still be carried out).

(5) Special condition for the mounting set (suction line side)
The operator/system integrator must ensure that in the event of a leak, the product inside the tank will remain free-flowing even in the condensate trap.
Suitable measures, such as heating the condensate trap (e.g. with a heater band) might need to be introduced.

(6) To exclude the risk of the leak detector pump overheating, underpressure must be generated with a suitable installation pump.

(7) A float switch (vertical installation position) can be used as a sensor. Alternatively, a vibrating fork sensor (any installation position) can be used.

W.3 Tanks filled with hot product (temperature difference in relation to the product inside the tank > 25°C)

(1) Calculation of the (potential) special switching value requirements in order to ensure reliable alarm triggering on the one hand and to prevent false alarms due to heat rise on the other.
What is important for this calculation is that the differences in temperature are known, and that the rate at which the temperature in the interstitial space changes can be approximated.

(2) Please see W.2 for information about installing the leak detector, selecting connecting lines and installing the mounting set.

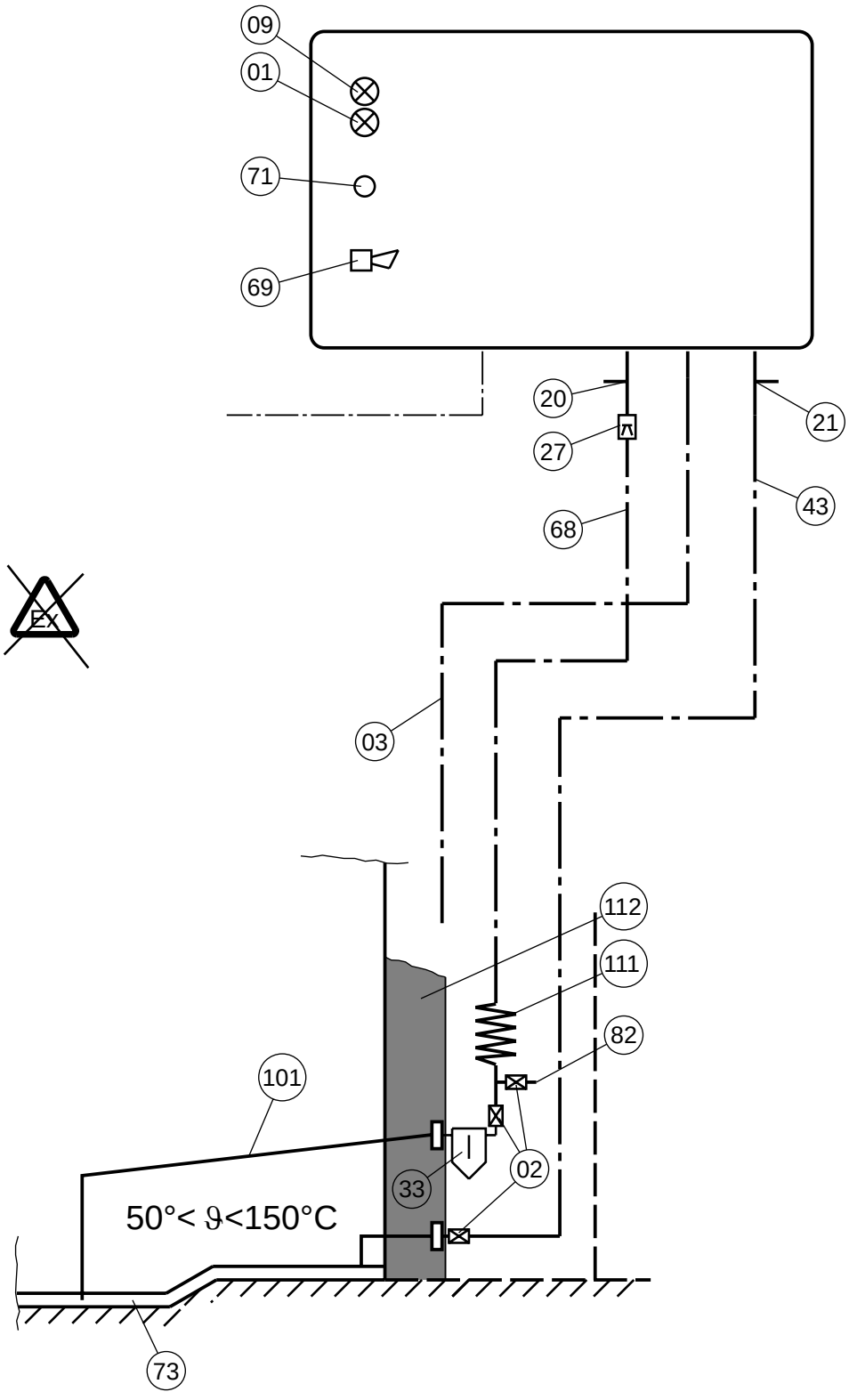
Commissioning the leak detector

(1) Chapters 5 and 6 describe how to commission the leak detector and test its function. Compliance with the information in the sections of text describing the VL./E model and the use of solenoid valves should be ensured where applicable.

Triggering of an alarm

(1) Please see chapter 6.5 of the documentation.

(2) Note (for version with sensor and solenoid valves): If liquid manages to reach as far as the sensor, the solenoid valves will remain closed even if the commissioning sequence is completed.



15-07-2008

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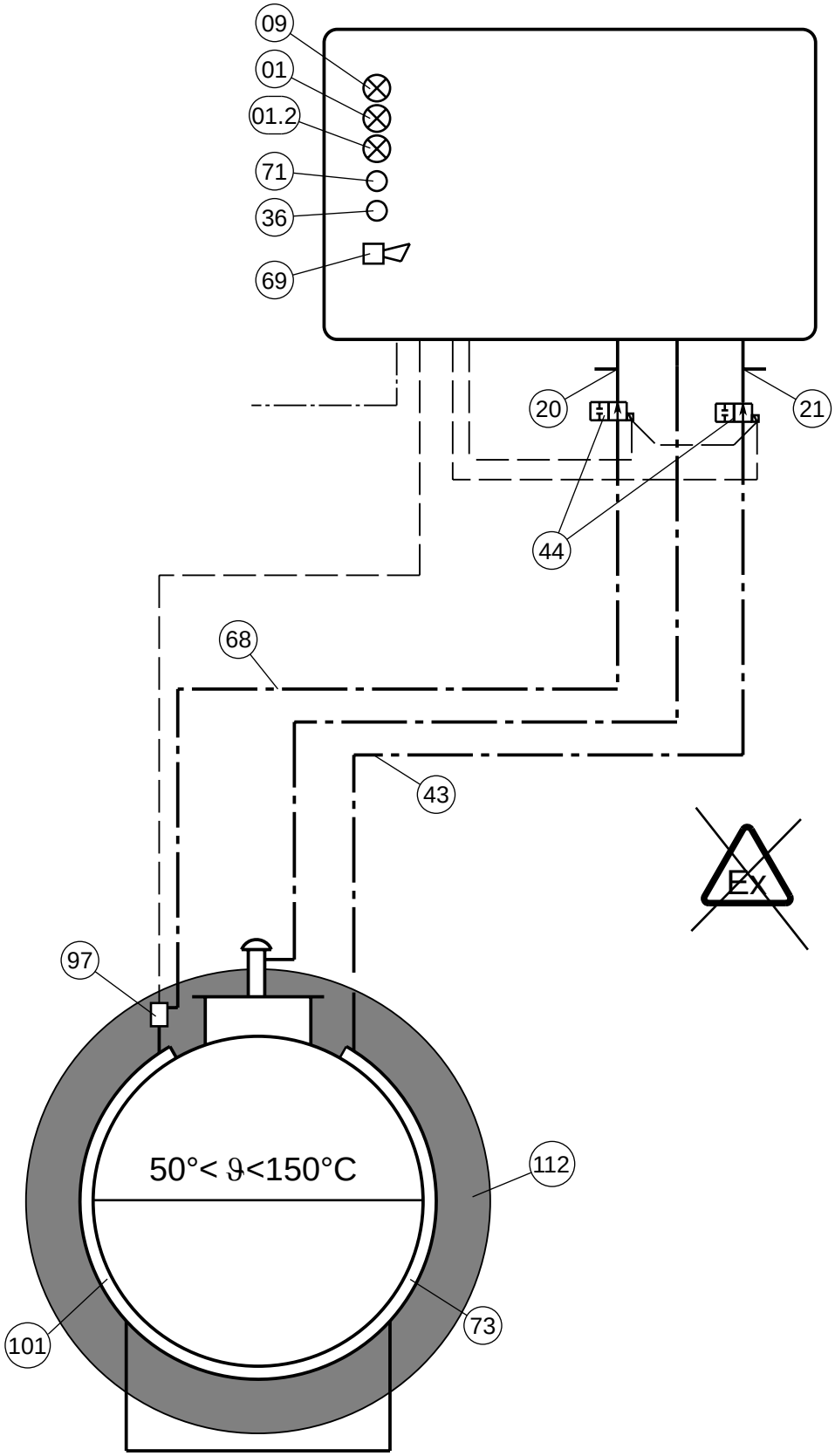
W - 01



15-07-2008

SGB

W - 02

Programming level indicator VL .. FA7

Display (multi-digit) for automatically alternatingly display of the filling in liters, percentage and centimeters.

Button (for the configuration/start of the filling level measurement)

1. Field of application

The integrated filling level indicator FA7 serves to identify the filling level of diesel and fuel oil in the connected container. It is compatible with all shapes of tanks, barrels and cisterns.

Note: If you would like to measure the filling level of any other kind of liquid than fuel/diesel oil, please contact the manufacturer/supplier.

2. Programming/Commissioning

A) Start

Press the button until you hear the acoustic confirmation signal (double note/vibration). “Tank” will appear on the display.

B) Setting the type of the tank

By pressing the button shortly, the type of tank will be chosen. By pressing long, the choice is confirmed. Available tank types:

- Cylindrical = cyl.
- Ball-shaped
- Cube

C) Setting of tank height/volume

C1: For cylindrical and cubical tanks the height and the volume are to be set.

First, there is a 3-digit display. The digits for centimeters, decimeters and meters are programmed one after the other starting with the ones, followed by the tens and hundreds.

The value is changed by a short key press and confirmed by a long key press.

After confirming the tank height, “Liter” will appear in the display. Enter the maximum capacity of the container from the right to the left as before.

The maximum content is: 99.999 l

C2: For ball-shaped containers only the liter input is required.

A 5-digit liter display appears Here, from right to left, enter the maximum capacity of the container in liters. The value is changed by a short key press and confirmed by a long key press.

D) First measurement

After confirming the entire contents, the first measurement automatically starts. The tank contents are now automatically displayed alternately in liters, percent and centimeters.

Note: Modify the programming

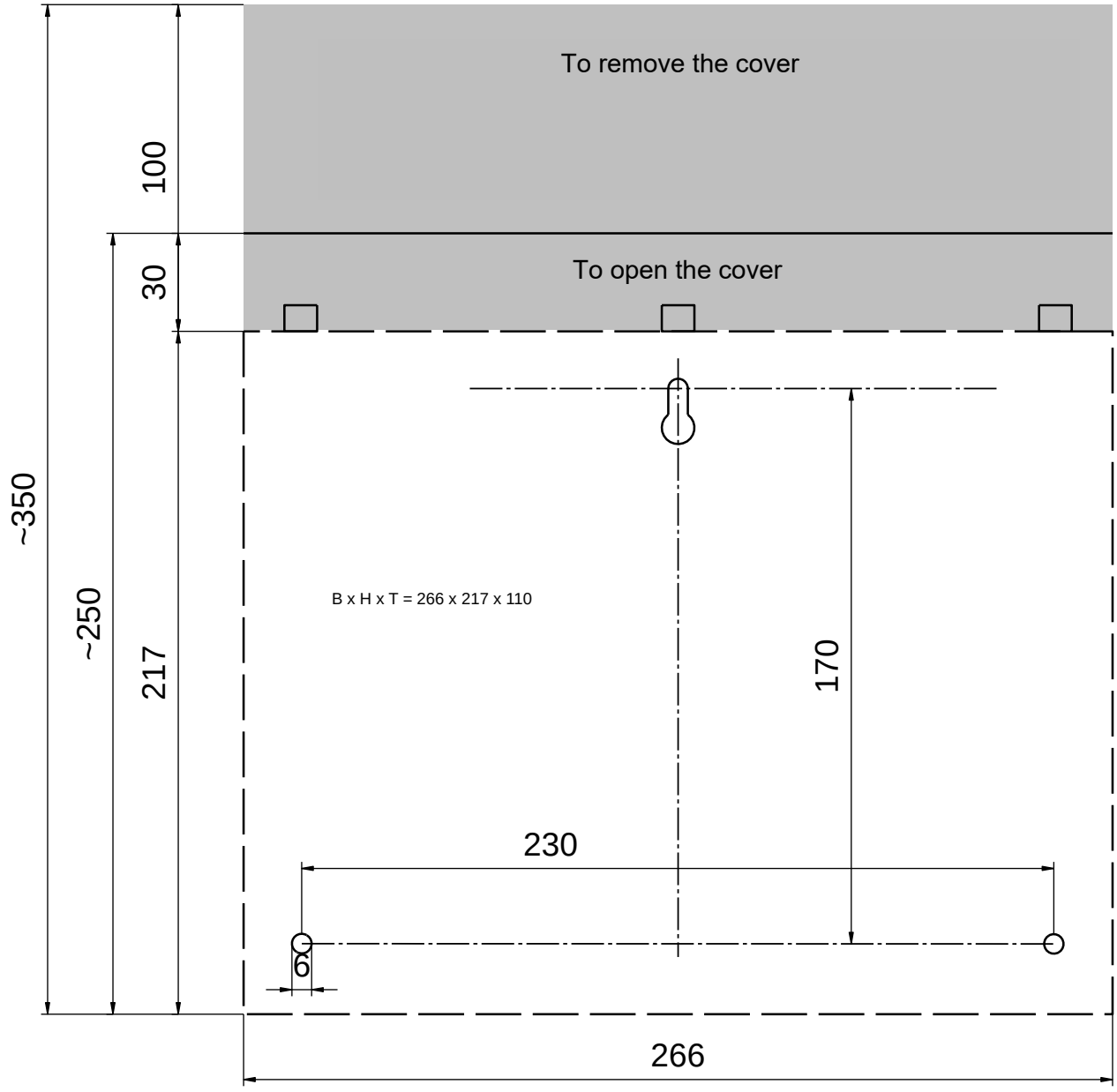
If you have to change any data, you have to start the programming from the beginning.

3. Operation

- Start the measurement by pressing the key
- After a short time, the filling level in l, % and cm will appear.
- Carry out a second measurement for control measures. If need be, measure multiple times until the filling level display is stable.

4. Technical Data

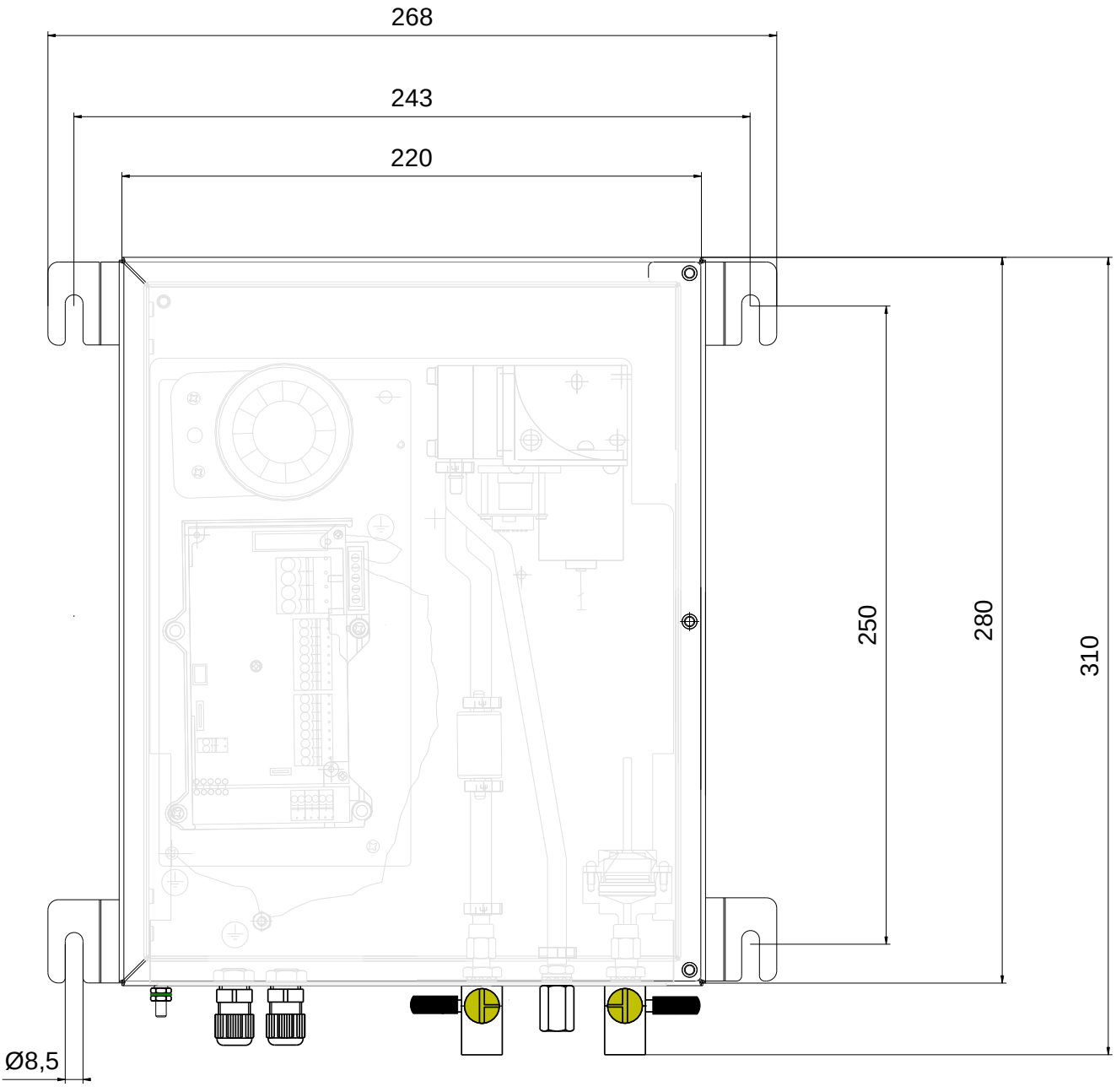
Measuring principle:	hydrostatic pressure
Max. filling level:	300 cm fuel oil column
Tolerance:	± 1 cm
Power supply:	via leak detector



18-11-2003

SGB

Dimension/Drilling
Plastic housing



D = 120 mm

28-06-2005

SGB

Dimension/Drilling
Stainless-steel housing

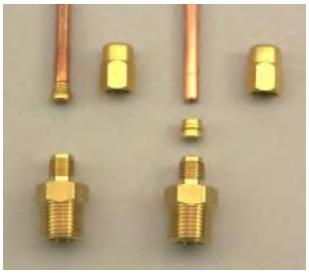
Work sheet: AB-820 500

Installation of screw connections

1 Flanged screw connection for flanged pipes

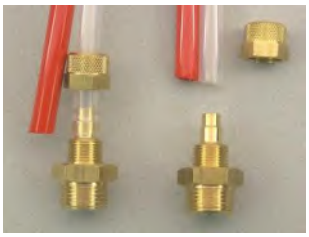
1. Oil o-rings
2. Place the intermediate ring loosely in the screw connection sleeve
3. Push the union nut and pressure ring over the pipe
4. Tighten the union nut by hand
5. Tighten the union nut until there is a noticeable increase in force
6. Final installation: Turn ¼ turn further

2 Clamping ring screw connection for plastic and metal pipes



1. Insert support sleeve (only plastic pipe) into the pipe end
2. Insert the pipe (with support sleeve) as far as it will go
3. Tighten nut of screw connection by hand to the resistance; then turn further 1¾ turns with the wrench
4. Release nut
5. Tighten nut by hand until stronger resistance
6. Final assembly of the screw connection by tightening ¼ turn

3 Quick-release screw connection for PA and PUR hose



1. Cut the PA pipe to length at a right angle
2. Unfasten the union nut and push it over the end of the pipe
3. Push the pipe onto the nipple up to the start of the thread
4. Tighten the union nut by hand
5. Re-tighten the union nut with a screwdriver until there is a noticeable increase in force (approximately 1 to 2 turns)

NOT suitable for PE hose

4 Hose connections (4 and 6 mm nozzle for OVERPRESSURE)

1. Push the wire or screw clip over the hose
2. Push the hose onto the Cu pipe or hose nozzle (heat or moisten PVC hose as necessary). The hose must fit tightly all round
3. Wire clip: press together with pliers and push onto the connection point
   Screw clip: push onto the connection point and tighten with screw-driver
   Make sure that the clip is an even tight fit.

5 Hose connections (4 and 6 mm nozzle for NEGATIVE PRESSURE)

For negative pressure applications with which there is no overpressure on the connection lines even in case of a leak, as point 5 but without clips.

For negative pressure applications with which there may be overpressure, as point 5.

EU DECLARATION OF CONFORMITY

We,

SGB GmbH
Hofstraße 10
57076 Siegen, Germany,

hereby declare in sole responsibility that the leak detector

VL ..

comply with the essential requirements of the EU directives listed below.

This declaration shall lose its validity if the device is modified without consulting us.

Number / short title	**Satisfied regulations**
2014/30/EU EMC Directive	EN 61000-6-3:2007 / A1:2011 EN 61000-6-2:2006 EN 61000-3-2:2014 EN 61000-3-3:2013
2014/35/EU Low Voltage Directive	EN 60335-1:2012 / A11:2014 / A13:2017 / A1:2019 / A2:2019 / A14:2019 EN 61010-1:2010 / A1:2019 EN 60730-1:2011
2014/68/EU Pressure Equipment Directive	Pressure accessory without safety function

Compliance is declared by

ppa. Martin Hücking
(Technical Director)

Declaration of Performance (DoP)

Number: **001 EU-BauPVO 2014**

1. Distinct identification code of the product type:

   Vacuum leak detector type VL ..

2. Purpose of use:

   Class I vacuum leak detector for monitoring double-walled tanks

3. Manufacturer:

   SGB GmbH, Hofstraße 10, 57076 Siegen, Germany
   Tel.: +49 271 48964-0, E-Mail: sgb@sgb.de

4. Authorized representative:

   n/a

5. System for the evaluation and inspection of the reliability of performance:

   System 3

6. In the case of the declaration of performance, which applies to a building product, which is covered by a harmonized standard:

   Harmonized standard: EN 13160-1-2:2003
   Notified body: TÜV Nord Systems GmbH & Co.KG, CC Tankanlagen, Große Bahnstraße 31, 22525 Hamburg, Germany
   ID number of the notified test laboratory: 0045

7. Declared performance:

Essential features	Performance	Harmonized standard
Pressure switch point	Passed	EN 13160-2: 2003
Reliability	10,000 Cycles	
Pressure test	Passed	
Volume flow rate test in the alarm switch point	Passed	
Function and leak tightness of the leak detection system	Passed	
Temperature resistance	-20°C .. +60°C	

8. Signed for the manufacturer and in the name of the manufacturer by:

   Dipl.-Ing. M. Hücking, Director of Operations
   Siegen, 02/2021

Manufacturer's declaration of compliance

SGB
MVV TB
Anhang C 2.15.15
TÜV-NORD

Compliance with the "Muster-Verwaltungsvorschrift Technische Baubestimmungen" (sample administrative regulation technical building regulations) is hereby declared.

Dipl.-Ing. M. Hücking, Director of Operations
Siegen, 02/2021

Note: By TÜV Nord not certified translation of the German original version

TÜV NORD Systems GmbH & Co. KG
PÜZ (testing, supervision and certification) — centre for containers, pipelines and pieces of equipment for systems with substances hazardous to water

Große Bahnstraße 31.22525 Hamburg Tel.: 040 8557-0 hamburg@tuev-nord.de
Fax: 040 8557-2295 www.tuev-nord.de

Certification

Contracting body:

SGB GmbH
Hofstraße 10
D-57076 Siegen

Manufacturer:
See above

Subject of testing:

Leak detectors with leak detector system type VL .../VLR ... according to DIN EN 131601:2003 and DIN EN 13160-2:2003
Class I vacuum monitoring system

Type of test:
Testing of the building product before confirming conformance in line with the ÜHP (manufacturer's declaration of conformity) procedure (initial testing)

Testing period: 19.06. – 08.12.2014

Test results:
The leak detectors of type VL .../VLR ... as vacuum systems correspond to the leak monitoring system class I according to EN 13160-1:2003 and meet the requirements of EN 13160-1:2003 in conjunction with EN 13160-2:2003.
Regarding the area of application and the installation of the leak detectors, the specifications given in the following shall apply:
- operating manual "Vacuum Leak Detector VL ..", document no. 605.300, updated 12/2014,
- operating manual "Vacuum Leak Detector VLR", document no. 605.400, updated 12/2014.
Compatibility with the building regulation list A, part 1, order No. 15.43, appendix is confirmed.

Details on testing can be found in the test report PÜZ 8111391811 dated 08.12.2014 for leak detectors type VL 330.

Hamburg, 08.12.2014

Note:
By TÜV not certified translation of the German original version

TÜV NORD Systems GmbH & Co. KG
Manufacturer Certification Competence Center

Grosse Bahnstrasse 31, D-22525 Hamburg
Phone: 040 8557-0
Fax: 040 8557-2295
hamburg@tuev-nord.de
www.tuev-nord.de

Certificate no. 8117744963-2

Subject of the test:	**Underpressure leak detector type VL(R)..**
Client:	SGB GmbH Hofstrasse 10 57076 Siegen
Manufacturer:	SGB GmbH
Test type:	Type testing of an underpressure leak detector with alarm device, type VL(R) in accordance with EN 13160-2:2016. Classification of the leak detection system as per classifications in accordance with EN 13160-1:2016.
Test object	Leak detector with alarm device, type VLR 410, device no. 1912430780
Test period:	02/2020
Test location:	Accredited test laboratory at TÜV NORD Systems GmbH & Co. KG
Test results:	**In the type test, the underpressure leak detector of type VLR 410 met the essential characteristics of Table ZA.1 of EN 13160-2:2016 and corresponds to leak detection system class I in accordance with EN 13160-1:2016. The specifications in the technical description "Documentation 605 400" dated 02/2018 apply in relation to the field of application and installation.**

Note: The certificate is only valid in combination with the test report of TÜV NORD test laboratory PB 8117744963-2 dated February 19, 2020. Production inspection is not required in accordance with EN 13160-2:2016.

Hamburg, 2/21/2020

TÜV NORD Systems GmbH & Co. GK
Manufacturer Certification Competence Center

J. Straube

Warranty

Dear customer,

You have purchased a high-quality leak detector from our company.

All of our leak detectors undergo a 100% quality control examination. The type plate with the serial number is only affixed after all test criteria have been complied with.

The **warranty period** for our leak detectors is **24 months**, beginning on the date of installation on site. The maximum warranty period is 27 months from our date of sale.

Our warranty will be effective only if the customer submits to us the functional report or test report on initial putting into service, prepared by a recognised company specialised in water and water protection systems, including the serial number of the leak detector.

The warranty shall not apply in the event of faulty or improper installation or improper operation, or if modifications or repairs are carried out without the manufacturer's consent.

Our warranty does not include parts, which may be perished premature due to their consistence or category of usage (e.g., pumps, valves, gaskets, etc.). Furthermore, we are not liable for defects or corrosion damages caused by humid or inappropriate installation environments.

The warranty is also subject to our General Terms and Conditions of business (see these online at: https://sgb.de/en/contact/generaltermsandconditions).

In case of malfunction, please contact your local specialist company:

Stamp of the specialist company

Yours sincerely

SGB GmbH
Hofstr. 10
57076 Siegen
Germany

T +49 271 48964-0
E sgb@sgb.de
I sgb.de

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

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Fax : +39 0354153200

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Rue de Longpont - BP 10202 - 91311 MONTLHERY
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www.eneria.fr
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Fax : +33 (0) 169802150

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Cod	Data	Descrizione
	25/01/2023	DOE

DATA 4 ITALY - DC07 Milan
Commissioning Level 1 - Grey tag
Main ~~and daily~~ fuel Tanks GEB GEA

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. /22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **199**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			**COLLAUDO SERBATOIO INTERNO**	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			**PROVA DEL RIVESTIMENTO**	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	25/11/22
Spessimetro		Uno-Check	Bolla nr.	347 del 25/11/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE nr. /22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **199**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			
MEASURING INSTRUMENTS				

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	

External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	25/11/22
Feeler gauge		Uno-Check	Delivery note No.	347

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
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Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. /22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **200**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			**COLLAUDO SERBATOIO INTERNO**	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			**PROVA DEL RIVESTIMENTO**	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	25/11/22
Spessimetro		Uno-Check	Bolla nr.	348 del 25/11/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

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Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
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Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE nr. /22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **200**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			
MEASURING INSTRUMENTS				

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	

External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	25/11/22
Feeler gauge		Uno-Check	Delivery note No.	348

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

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Cod	Data	Descrizione
	15/12/2022	DOE

DATA 4 ITALY - DC07 Milan
Commissioning Level 1 - Grey tag
Main ~~and daily~~ fuel Tanks GED GEC

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. 238/22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **158**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			COLLAUDO SERBATOIO INTERNO	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			PROVA DEL RIVESTIMENTO	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	03/10/22
Spessimetro		Uno-Check	Bolla nr.	291 del 03/10/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE

nr. 238/22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **158**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			

MEASURING INSTRUMENTS			**COATING TEST**	
Internal tank			Internal lining type:	
Instrument	m.u.	Model		
Manometer	0 - 4	STM 813	Result	
External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	03/10/22
Feeler gauge		Uno-Check	Delivery note No.	291

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. 238/22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **159**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			**COLLAUDO SERBATOIO INTERNO**	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			**PROVA DEL RIVESTIMENTO**	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	03/10/22
Spessimetro		Uno-Check	Bolla nr.	292 del 03/10/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE

nr. 238/22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **159**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			

MEASURING INSTRUMENTS

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	

External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	03/10/22
Feeler gauge		Uno-Check	Delivery note No.	292

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

GIS.IMO S.r.l.
centro direzionale quattrotorri
06132 PERUGIA
Tél. : +39 075 517 29 83
Fax : +39 075 518 12 88

Assistente del committente

GARRETTI ASSOCIATI S.r.l.
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Progetto architettonico

GARRETTI ASSOCIATI S.r.l.
via Trieste, 9 - 20146 MILANO
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Tél. : +39 02 430 6931
Fax : +39 02 480 170 51

Opere edili e prefabbricati

GENERALE PREFABBRICATI S.p.a
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06132 PERUGIA
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Impianti meccanici

OMEGA CONCEPT IMPIANTI E SISTEMI S.p.a.
Via Chiese, 72 - 20126 - MILANO
www.engie-axima.fr
Tél. : +39 02 8180951
Fax : +39 02 8135163

impianti elettrici/dati

ENGIE CONTRACTING ITALIA S.r.l.
Via Chiese, 72 - 20126 - MILANO
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Tél. : +39 02 94399262
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SCHNEIDER ELECTRIC S.p.A.
Via Circonvallazione Est, 1 - 24040 STEZZANO (BG)
www.schneider-electric.com
Tél. : +39 0354151111
Fax : +39 0354153200

ENERIA
Rue de Longpont - BP 10202 - 91311 MONTLHERY
Cedex - FRANCE
www.eneria.fr
Tél. : +33 (0) 169802100
Fax : +33 (0) 169802150

Progettazione antincendio

STUDIO TECNICO ZACCARELLI S.r.l.
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www.studiozaccarelli.it
Tél. : +39 02 891 200 81
Fax : +39 02 813 962 8

Supervisione

ITALSOCOTEC S.p.a.
Via Pontaccio,12/A- 20121 Milano
italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

Cod	Data	Descrizione
	15/12/2022	DOE

DATA 4 ITALY - DC07 Milan
Commissioning Level 1 - Grey tag
Main ~~and daily~~ fuel Tanks GEF GED

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. /22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **201**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			**COLLAUDO SERBATOIO INTERNO**	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			**PROVA DEL RIVESTIMENTO**	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	25/11/22
Spessimetro		Uno-Check	Bolla nr.	349 del 25/11/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE nr. /22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **201**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			
MEASURING INSTRUMENTS				

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	

External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	25/11/22
Feeler gauge		Uno-Check	Delivery note No.	349

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. /22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **202**
Destinazione: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

CARATTERISTICHE SERBATOIO			**COLLAUDO SERBATOIO INTERNO**	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			**PROVA DEL RIVESTIMENTO**	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	25/11/22
Spessimetro		Uno-Check	Bolla nr.	350 del 25/11/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE nr. /22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **202**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			
MEASURING INSTRUMENTS				

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	
External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	25/11/22
Feeler gauge		Uno-Check	Delivery note No.	350

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente	**GIS.IMO S.r.l.** centro direzionale quattrotorri 06132 PERUGIA	Tél. : +39 075 517 29 83 Fax : +39 075 518 12 88
Assistente del committente	**GARRETTI ASSOCIATI S.r.l.** via Trieste, 9 - 20146 MILANO www.garrettiassociati.it	Tél. : +39 02 430 6931 Fax : +39 02 480 170 51
Progetto architettonico	**GARRETTI ASSOCIATI S.r.l.** via Trieste, 9 - 20146 MILANO www.garrettiassociati.it	Tél. : +39 02 430 6931 Fax : +39 02 480 170 51
Opere edili e prefabbricati	**GENERALE PREFABBRICATI S.p.a** centro direzionale quattrotorri 06132 PERUGIA www.generaleprefabbricatispa.com	Tél. : +39 075 517 29 83 Fax : +39 075 518 12 88
Impianti meccanici	**OMEGA CONCEPT IMPIANTI E SISTEMI S.p.a.** Via Chiese, 72 - 20126 - MILANO www.engie-axima.fr	Tél. : +39 02 8180951 Fax : +39 02 8135163
impianti elettrici/dati	**ENGIE CONTRACTING ITALIA S.r.l.** Via Chiese, 72 - 20126 - MILANO www.engie.com	Tél. : +39 02 94399262 Fax : +39 02 94399655
	SCHNEIDER ELECTRIC S.p.A. Via Circonvallazione Est, 1 - 24040 STEZZANO (BG) www.schneider-electric.com	Tél. : +39 0354151111 Fax : +39 0354153200
	ENERIA Rue de Longpont - BP 10202 - 91311 MONTLHERY Cedex - FRANCE www.eneria.fr	Tél. : +33 (0) 169802100 Fax : +33 (0) 169802150
Progettazione antincendio	**STUDIO TECNICO ZACCARELLI S.r.l.** via Ludovico il Moro, 17 - 20143 MILANO www.studiozaccarelli.it	Tél. : +39 02 891 200 81 Fax : +39 02 813 962 8
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Cod	Data	Descrizione
	15/12/2022	DOE

DATA 4 ITALY - DC07 Milan
Commissioning Level 1 - Grey tag
Main ~~and daily~~ fuel Tanks GEH GEG

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO

nr. 238/22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **160**

Destinazione:
CANTIERE DATA4
VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)

CARATTERISTICHE SERBATOIO		
Capacità	MC	40
Diametro int.	mm.	2300
Diametro est.	mm.	2332
Lunghezza tot int	mm.	9850
Lunghezza tot est	mm.	9890
Sp. fasciame int.	mm.	5
Sp. fondi int.	mm.	5
Sp. fasciame est.	mm.	4
Sp. fondi est.	mm.	4
Lamiera tipo	S235JR UNI EN 10025	
Rivestimento est	VETRORESINA	
Spessore riv. est	mm.	
Rivestimento int		
Spessore riv. int	micron	

COLLAUDO SERBATOIO INTERNO	
Tipo prova	Pneumatica
Pressione di prova	1,5 Bar
Tempo di prova	2 ore
Esito	POSITIVO
Pressione di esercizio	Atmosferica

COLLAUDO SERBATOIO ESTERNO	
Tipo prova	Pneumatica
Pressione di prova	0,5 Bar
Tempo di prova	2 ore
Esito	POSITIVO
Pressione di esercizio	Atmosferica

STRUMENTI DI MISURA		
Serbatoio interno		
Strumento	u.m.	Modello
Manometro	0 - 4	STM 813
Serbatoio esterno		
Strumento	u.m.	Modello
Manometro	0-1.6	STM 813
Rivestimento		
Strumento	u.m.	Modello
Scintillografo		Spark-Tester
Spessimetro		Uno-Check

PROVA DEL RIVESTIMENTO	
Tipo rivestimento int.	
Esito	
Tipo rivestimento est.	VETRORESINA
Voltaggio Scintillografo	
Esito	
Data Emissione Collaudo	03/10/22
Bolla nr.	293 del 03/10/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE

nr. 238/22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **160**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			
MEASURING INSTRUMENTS				

Internal tank			**COATING TEST**	
Instrument	m.u.	Model	Internal lining type:	
Manometer	0 - 4	STM 813		
			Result	

External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	03/10/22
Feeler gauge		Uno-Check	Delivery note No.	293

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

CERTIFICATO DI COLLAUDO nr. 238/22

Cliente: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	N° Ord. Cliente: Verbale del 06/07/2022	Comm. B&G GAS SRL UNIP. OC1/120 del 07/07/22
Prodotto: Serbatoio a doppia parete per contenimento carburante	Rif. Disegno 2204-050	Matricola n° **161**

Destinazione:
CANTIERE DATA4
VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)

CARATTERISTICHE SERBATOIO			COLLAUDO SERBATOIO INTERNO	
Capacità	MC	40	Tipo prova	Pneumatica
Diametro int.	mm.	2300	Pressione di prova	1,5 Bar
Diametro est.	mm.	2332	Tempo di prova	2 ore
Lunghezza tot int	mm.	9850	Esito	POSITIVO
Lunghezza tot est	mm.	9890	Pressione di esercizio	Atmosferica
Sp. fasciame int.	mm.	5		
Sp. fondi int.	mm.	5	**COLLAUDO SERBATOIO ESTERNO**	
Sp. fasciame est.	mm.	4	Tipo prova	Pneumatica
Sp. fondi est.	mm.	4	Pressione di prova	0,5 Bar
Lamiera tipo	S235JR UNI EN 10025		Tempo di prova	2 ore
Rivestimento est	VETRORESINA		Esito	POSITIVO
Spessore riv. est	mm.		Pressione di esercizio	Atmosferica
Rivestimento int				
Spessore riv. int	micron			

STRUMENTI DI MISURA			PROVA DEL RIVESTIMENTO	
Serbatoio interno				
Strumento	u.m.	Modello	Tipo rivestimento int.	
Manometro	0 - 4	STM 813		
			Esito	
Serbatoio esterno				
Strumento	u.m.	Modello	Tipo rivestimento est.	VETRORESINA
Manometro	0-1.6	STM 813	Voltaggio Scintillografo	
			Esito	
Rivestimento				
Strumento	u.m.	Modello		
Scintillografo		Spark-Tester	Data Emissione Collaudo	03/10/22
Spessimetro		Uno-Check	Bolla nr.	294 del 03/10/22

Si certifica di avere eseguito con esito positivo la prova di tenuta alla pressione 1,5 bar per la durata di due ore

REDATTO DA: Ufficio Collaudi		La ditta: B&G GAS SRL UNIPERSONALE

BG GAS

B&G GAS S.R.L. Unipersonale
Sede Legale, Operativa e Amministrativa: Via Pisignano, 3601 47522 Cesena (FC)
Capitale Sociale Euro 10.000,00 - C.F./P.I. 03982800405 – R.E.A. 324948
Tel. 0547/353769 - E-mail b&g@cesena.com

TIGHTNESS TEST CERTIFICATE

nr. 238/22

Customer: IMPIANTI ENERGIA SRL VICOLO CUSTODI, 2 21052 BUSTO ARSIZIO (VA)	Customer's order No.: Verbale del 06/07/2022	Comm. OC1/120 del 07/07/2022
Product: Double walled underground fuel storage tank		Serial No.: **161**
Destination: CANTIERE DATA4 VIA REISS ROMOLI, 35 LOC. CASTELLETTO (MI)		

TANK FEATURES			**TANK INTERNAL TIGHTNESS TEST**	
Capacity	M^3	40	Test type	Pneumatic
Int. diameter	mm.	2300	Test pressure	1,5 Bar
Ext. diameter	mm.	2332	Test time	2 Hour
Total length (int.)	mm.	9850	Result	POSITIVE
Total length (ext.)	mm.	9890	Working pressure	Atmospheric
Int. shell plate thick.	mm.	5		
Int.head plate thick.	mm.	5	**TANK EXTERNAL TIGHTNESS TEST**	
Ext. shell plate thick.	mm.	4	Test type	Pneumatic
Ext.head plate thick.	mm.	4	Test pressure	0,5 Bar
Steel plate type	S235JR UNI EN 10025		Test time	2 Hour
External coating	FIBERGLASS		Result	POSITIVE
Ext. coating thick.	mm.		Working pressure	Atmospheric
Internal lining				
Int. lining thickness	micron			

MEASURING INSTRUMENTS			**COATING TEST**	
Internal tank			Internal lining type:	
Instrument	m.u.	Model		
Manometer	0 - 4	STM 813	Result	
External tank				
Instrument	m.u.	Model	External coating type:	FIBERGLASS
Manometer	0-1.6	STM 813	Pin hole detector	
			Result	
Coating				
Instruments	m.u.	Model		
Pin hole detector		Spark-Tester	Test date	03/10/22
Feeler gauge		Uno-Check	Delivery note No.	294

This is to certify that the tightness test has been performed with positive result at 1,5 bar pressure for two hours.

Compiled by: Testing department		Company: B&G GAS SRL UNIPERSONALE

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C017
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	A STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 — GISIMO S.r.l.

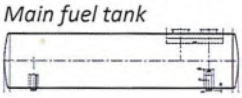
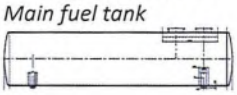
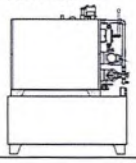
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S1 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Cuve principale S2 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	17/11/22	C

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C017
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	A STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

1 MISE EN PLACE CUVE N°S1 / *MAIN FUEL TANK N°S1 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S2 / *MAIN FUEL TANK N°S2 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trou d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

3 MISE EN PLACE DU RJ DU GEA / *GEA DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date
Date 06/12/2022

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C017	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	A STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gavrgov		
Date:	06/12/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C018
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	B STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

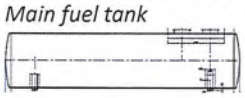
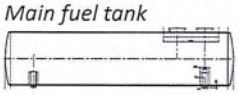
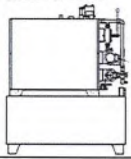
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S1 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	
Cuve principale S2 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	17/11/22	NC Damage during transportation → New One 03/2023

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C018
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	B STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l

1 MISE EN PLACE CUVE N°S1 / *MAIN FUEL TANK N°S1 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S2 / *MAIN FUEL TANK N°S2 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Eneria CAT	Commissioning Level:	LEVEL 2 RED
	Item Number:	C018
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	B STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

3 MISE EN PLACE DU RJ DU GEB / *GEB DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	NC	Damage during transportation
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	NC	New One on 01/2023
Déchargement & Manutention *Unloading & Handling*	/	/

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	Daily tank broken put in position to prepare pipe piping waiting for new one 01/2023

Pour valoir ce que de droit
To assert what of right

Date
Date 06/12/2022

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C018	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	B STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouygou		
Date:	06/12/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C019
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	C STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GRISIMO S.r.l

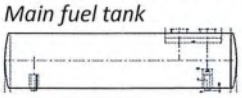
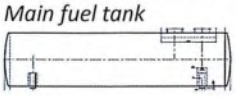
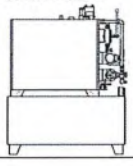
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S3 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Cuve principale S4 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	18/11/22	C

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C019
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	C STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l

1 MISE EN PLACE CUVE N°S3 / *MAIN FUEL TANK N°S3 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S4 / *MAIN FUEL TANK N°S4 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C019
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	C STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GRISIMO S.r.l

3 MISE EN PLACE DU RJ DU GEC / *GEC DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date 25/11/2022
Date

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C019	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	C STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouygou		
Date:	25/11/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C020
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	D STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

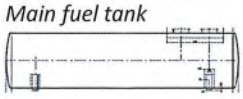
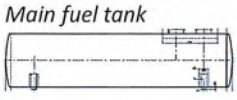
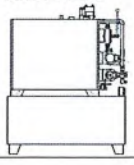
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S3 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Cuve principale S4 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	19/11/22	C

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C020
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	D STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

1 MISE EN PLACE CUVE N°S3 / *MAIN FUEL TANK N°S3 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S4 / *MAIN FUEL TANK N°S4 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Commissioning Level:	LEVEL 2 RED	
Item Number:	C020	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	D STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

3 MISE EN PLACE DU RJ DU GED / *GED DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date
Date 25/11/2022

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C020	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	D STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Georgou		
Date:	25/4/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C021
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	E STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

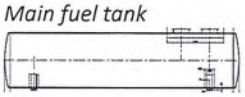
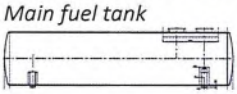
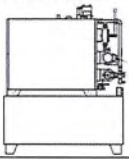
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S5 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Cuve principale S6 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	05/10/22	C

Eneria CAT	Commissioning Level:	LEVEL 2_RED	Data4
	Item Number:	C021	
	Item Description:	GENERATOR FUEL TANK	
	Equipment ID / Asset Tag:	E STRING GE	GISIMO s.r.l.
	Discipline:	MECHANICAL	
	Contractor / Vendor:	ENERIA	

1 MISE EN PLACE CUVE N°S5 / *MAIN FUEL TANK N°S5 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S6 / *MAIN FUEL TANK N°S6 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C021
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	E STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO s.r.l.

3 MISE EN PLACE DU RJ DU GEE / *GEE DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date 06/12/2022
Date

Signature Contrôleur
Signature controller

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouvgou		
Date:	06/12/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C022
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	F STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l.

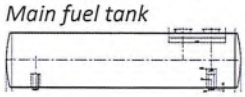
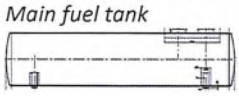
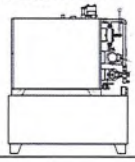
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S5 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Cuve principale S6 *Main fuel tank* 	9900	∅ 2332		8000	28/11/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	05/10/22	C

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C022
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	F STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l

1 MISE EN PLACE CUVE N°S5 / *MAIN FUEL TANK N°S5 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S6 / *MAIN FUEL TANK N°S6 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

3 MISE EN PLACE DU RJ DU GEF / *GEF DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date 06/12/2022
Date

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C022	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	F STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouygou		
Date:	06/12/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C023
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	G STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 SMART & SCALABLE DATA CENTERS

GISIMO S.r.l

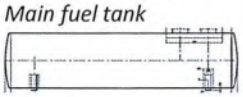
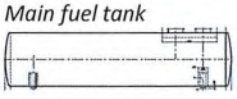
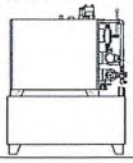
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S7 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Cuve principale S8 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	04/10/22	C

Commissioning Level:	LEVEL 2_RED	
Item Number:	C023	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	G STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

1 MISE EN PLACE CUVE N°S7 / *MAIN FUEL TANK N°S7 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S8 / *MAIN FUEL TANK N°S8 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Commissioning Level:	LEVEL 2_RED	
Item Number:	C023	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	G STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

3 MISE EN PLACE DU RJ DU GEG / *GEG DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date
Date 25/11/2022

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C023	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	G STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouygou		
Date:	25/11/2022		
Signature			

Eneria CAT	Commissioning Level:	LEVEL 2_RED
	Item Number:	C024
	Item Description:	GENERATOR FUEL TANK
	Equipment ID / Asset Tag:	H STRING GE
	Discipline:	MECHANICAL
	Contractor / Vendor:	ENERIA

Data4 — GISIMO S.r.l

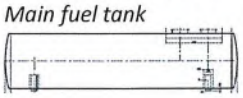
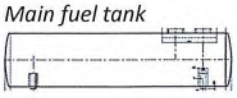
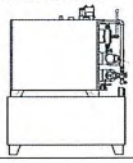
Centrale secours groupe électrogène - DATA4 bâtiment DC07 Milan

Genset Backup Power station - DATA4 building DC07 Milan

PV d'autocontrôles – Installation Cuves Principales et Réservoir Journalier

Self-checking report – Installation of Main Fuel Tank and Daily Tank

Installateur *Installer*	Localisation Location	Position Position
IMPIANTI	Exterieur *Outside*	According to plan GDPM-220215-05

Equipement *Equipment*	Longueur *Length* (mm)	Profondeur *Depth* (mm)	Hauteur *Height* (mm)	Poids *Weight* (kg)	Date livraison *Delivery date*	Conforme *Compliant* (C/NC)
Cuve principale S7 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Cuve principale S8 *Main fuel tank* 	9900	∅ 2332		8000	05/10/22	C
Reservoir journalier *Daily tank 500 L* 	1551	583	1922	185	04/10/22	C

Commissioning Level:	LEVEL 2_RED	
Item Number:	C024	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	H STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

1 MISE EN PLACE CUVE N°S7 / *MAIN FUEL TANK N°S7 INSTALLATION*

1.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

1.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

1.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

2 MISE EN PLACE CUVE N°S8 / *MAIN FUEL TANK N°S8 INSTALLATION*

2.1 Livraison et manutention de la cuve / *Delivery and handling of tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de la cuve *Visual verification of the tank*	C	
2 trous d'homme par cuve *2 manholes per tank*	C	
Déchargement & Manutention *Unloading & Handling*	C	

2.2 Condition de mise en place en fosse / *Condition of installation in the pit*

DESIGNATION	C/NC	COMMENT
Dimensions fosse *Pit dimension*	C	
Dalle beton *Concrete slab*	C	

2.3 Mise en place cuve/ *Tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement cuve *Tank positioning*	C	

Commissioning Level:	LEVEL 2 RED	
Item Number:	C024	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	H STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

3 MISE EN PLACE DU RJ DU GEH / *GEH DAILY TANK INSTALLATION*

3.1 Livraison et manutention du RJ / *Delivery and handling of daily tank*

DESIGNATION	C/NC	COMMENT
Vérification visuelle de l'état du RJ *Visual verification of the state of daily tank*	C	
Instrumentation (pompes, jauge, detection fuite) *Instrumentation (pumps, gauge, leak detection)*	C	
Déchargement & Manutention *Unloading & Handling*	C	

3.2 Condition de mise en place Local GE / *GE Room Installation condition*

DESIGNATION	C/NC	COMMENT
Zone d'implantation libre *Free area of implantation*	C	
Peinture au sol *Floor painting*	C	
Habillage insonorisé des murs *soundproof wall cladding*	C	

3.3 Mise en place du RJ / *Daily tank Installation*

DESIGNATION	C/NC	COMMENT
Positionnement RJ *Daily tank positioning*	C	

Pour valoir ce que de droit
To assert what of right

Date
Date 25/11/2022

Signature Contrôleur
Signature controller

Commissioning Level:	LEVEL 2_RED	
Item Number:	C024	
Item Description:	GENERATOR FUEL TANK	
Equipment ID / Asset Tag:	H STRING GE	
Discipline:	MECHANICAL	
Contractor / Vendor:	ENERIA	

LAST PAGE

LEVEL 2_RED	ENERIA	GISIMO/IMOGIS	CX AGENT
Name:	Alexis Gouygou		
Date:	25/11/2022		
Signature			

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

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centro direzionale quattrotorri
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Assistente del committente

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Opere edili e prefabbricati

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Impianti meccanici

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Via Chiese, 72 - 20126 - MILANO
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Tél. : +39 02 8180951
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impianti elettrici/dati

ENGIE CONTRACTING ITALIA S.r.l.
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www.engie.com
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Via Circonvallazione Est, 1 - 24040 STEZZANO (BG)
www.schneider-electric.com
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Fax : +39 0354153200

ENERIA
Rue de Longpont - BP 10202 - 91311 MONTLHERY Cedex - FRANCE
www.eneria.fr
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Fax : +33 (0) 169802150

Progettazione antincendio

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via Ludovico il Moro, 17 - 20143 MILANO
www.studiozaccarelli.it
Tél. : +39 02 891 200 81
Fax : +39 02 813 962 8

Supervisione

ITALSOCOTEC S.p.a.
Via Pontaccio,12/A- 20121 Milano
italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

Cod	Data	Descrizione
	31/01/2023	DOE

DATA 4 ITALY - DC07

Declaration Limiteur de remplissage / Load limiting valve Declaration

Dichiarazione Valvola limitatrice del carico

dipvvf.DCPREV.REGISTRO
UFFICIALE.U.0004279.23-03-2021

Ministero dell'Interno

DIPARTIMENTO DEI VIGILI DEL FUOCO, DEL SOCCORSO PUBBLICO E DELLA DIFESA CIVILE
DIREZIONE CENTRALE PER LA PREVENZIONE E LA SICUREZZA TECNICA
CENTRO STUDI ED ESPERIENZE

VISTO il decreto ministeriale 31 luglio 1934 recante "Approvazione delle norme di sicurezza per la lavorazione, l'immagazzinamento, l'impiego o la vendita di oli minerali, e per il trasporto degli oli stessi";

VISTA l'istanza presentata dalla ditta "RIDART S.r.l." con sede legale in Via Arnaldo da Brescia - 21013 Gallarate (VA), acquisita con prot. n. 2547/DCPREV del 19/02/2021 per rilascio di una approvazione di tipo finalizzata a rinnovare l'autorizzazione commerciale dei dispositivi di sicurezza per passo d'uomo di varie versioni marca "RIDART S.r.l.";

VISTA la dichiarazione della Società, contenente l'impegno a costruire i suddetti erogatori per carburanti liquidi di categoria "C" mantenendo invariata qualsivoglia caratteristica tecnica e funzionale degli stessi prototipi certificati, costituiti, ove previsto, da componenti provvisti di marcatura CE ai sensi delle direttive applicabili;

VISTA la precedente la Approvazione di Tipo DCPST/A7/4070/AT/09173 del 06 maggio 2015 rilasciata da questo Ministero;

VISTE le Certificazioni n. 3704/1571 - 35/49A del 10/10/2014 e 3704/1571 - 35/51 del 24/03/2015 rilasciate dall'Area VII della Direzione Centrale per la Prevenzione e la Sicurezza Tecnica, specificamente autorizzata dal Ministero dell'Interno ai sensi del D.M. 26 marzo 1985;

SI RINNOVA

ai fini della prevenzione incendi, l'Approvazione di Tipo DCPST/A7/4070/AT/09173 del 06 maggio 2015 intestata alla ditta "RIDART S.r.l." riferita ai dispositivi di sicurezza per passo d'uomo nelle seguenti versioni precedentemente certificate e approvate:

Il presente atto, intestato alla RIDART S.r.l., è costituito di n. 3 facciate e non può essere riprodotto e/o mostrato a terzi se non integralmente

Marca	Versioni	
RIDART	21A	(valvola ritegno a taratura fissa) ;
	55B	(valvola ritegno ad angolo a taratura variabile) ;
	70B	(tappo di carico rapido in alluminio corpo girevole) ;
	70bis	(tappo di carico rapido ottone e alluminio corpo girevole) ;
	70C	(tappo di carico lucchettabile da associare a 90C) ;
	90C	(ghiera attacco rapida in alluminio universale);
	137	(tappo lucchettabile ottone-alluminio);
	190ENP	(sfiato terminale antideflagrante);
	198	(sfiato con carboni attivi) ;
	330ENP	(rompi fiamma antideflagrante);
	444a	(valvola limitatrice di carico corpo alluminio galleggiante polietilene);
	444f	(valvola limitatrice di carico corpo ferro galleggiante polietilene;
	445	(valvola limitatrice di carico);
	446	(valvola limitatrice di carico alluminio).
	70	(tappo di carico rapido con corpo girevole in ottone);
	70 A	(tappo di carico rapido con corpo girevole in alluminio);
	80	(tappo di carico rapido con corpo unico in alluminio);
	137 OT	(tappo di carico lucchettabile con corpo girevole in ottone);
	138	(ghiera rapida in ottone);
	90	(ghiera rapida in ottone o alluminio);
	60	(valvola ad angolo in ottone o ghisa);
	50	(filtro a succheruola in ottone);
	10	(valvola di fondo in ottone);
	135	(sede per asta metrica in ottone);
	950	(asta metrica in alluminio);
	190	(tagliafiamma terminale in ottone);
	440	(valvola limitatrice di carico).

L'installazione delle predette apparecchiature dovrà effettuarsi con l'osservanza di tutte le norme di sicurezza vigenti in materia.

Può essere immesso in commercio ciascun esemplare omologo a quelli sopraindicati, se corredato, ai sensi dell'art. 47 del D.P.R. n. 445/2000, di dichiarazione redatta dall'intestatario del presente atto attestante la conformità specificatamente riferita alla apparecchiatura a schede magnetiche per la gestione automatica dei distributori per carburanti liquidi di categoria "C" avente codice di Approvazione di Tipo DCPST/A7/02547/AT/09173.

La presente approvazione di tipo, rilasciata in forma digitale ai fini della commercializzazione dei prodotti riportati in elenco, ha validità fino al 05/05/2025,
ed è prevista solo qualora tali dispositivi siano installati in contenitori-distributori di carburanti liquidi di cat. C approvati, o da approvare, ai sensi dei DD.MM. 31 luglio 1934 e 22 novembre 2017, e siano utilizzati in apparecchi distributori o gruppi erogatori per la sola erogazione dei liquidi di cat. C da installarsi nelle zone e nei casi previsti all'art. 5 comma 3 del D.M. 27 gennaio 2006.

Il presente atto, intestato alla RIDART S.r.l., è costituito di n. 3 facciate e non può essere riprodotto e/o mostrato a terzi se non integralmente

All'intestatario del presente atto, ed ai soggetti comunque interessati, si richiamano tutti gli obblighi di legge derivanti dall'applicazione dei predetti Decreti Ministeriali.

Approvazione di Tipo
DCPST/A7/02547/AT/09173

sottoscrizione resa in forma digitale ai sensi di Legge
Visto: Il DIRIGENTE
(Dott. Ing. Marcello LOMBARDINI)

sottoscrizione resa in forma digitale ai sensi di Legge
Il Responsabile di Settore
D.V. Ing. Andrea Gattuso

sottoscrizione resa in forma digitale ai sensi di Legge
IL DIRETTORE CENTRALE
(Marsella)

Importo		€ 16,00				Data Emissione				03/02/2021			
IDENTIFICATIVO MARCA DA BOLLO													
0	1	1	9	1	6	7	5	6	4	7	8	9	6

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

GIS.IMO S.r.l.
centro direzionale quattrotorri
06132 PERUGIA
Tél. : +39 075 517 29 83
Fax : +39 075 518 12 88

Assistente del committente

GARRETTI ASSOCIATI S.r.l.
via Trieste, 9 - 20146 MILANO
www.garrettiassociati.it
Tél. : +39 02 430 6931
Fax : +39 02 480 170 51

Progetto architettonico

GARRETTI ASSOCIATI S.r.l.
via Trieste, 9 - 20146 MILANO
www.garrettiassociati.it
Tél. : +39 02 430 6931
Fax : +39 02 480 170 51

Opere edili e prefabbricati

GENERALE PREFABBRICATI S.p.a
centro direzionale quattrotorri
06132 PERUGIA
www.generaleprefabbricatispa.com
Tél. : +39 075 517 29 83
Fax : +39 075 518 12 88

Impianti meccanici

OMEGA CONCEPT IMPIANTI E SISTEMI S.p.a.
Via Chiese, 72 - 20126 - MILANO
www.engie-axima.fr
Tél. : +39 02 8180951
Fax : +39 02 8135163

impianti elettrici/dati

ENGIE CONTRACTING ITALIA S.r.l.
Via Chiese, 72 - 20126 - MILANO
www.engie.com
Tél. : +39 02 94399262
Fax : +39 02 94399655

SCHNEIDER ELECTRIC S.p.A.
Via Circonvallazione Est, 1 - 24040 STEZZANO (BG)
www.schneider-electric.com
Tél. : +39 0354151111
Fax : +39 0354153200

ENERIA
Rue de Longpont - BP 10202 - 91311 MONTLHERY Cedex - FRANCE
www.eneria.fr
Tél. : +33 (0) 169802100
Fax : +33 (0) 169802150

Progettazione antincendio

STUDIO TECNICO ZACCARELLI S.r.l.
via Ludovico il Moro, 17 - 20143 MILANO
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Supervisione

ITALSOCOTEC S.p.a.
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italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

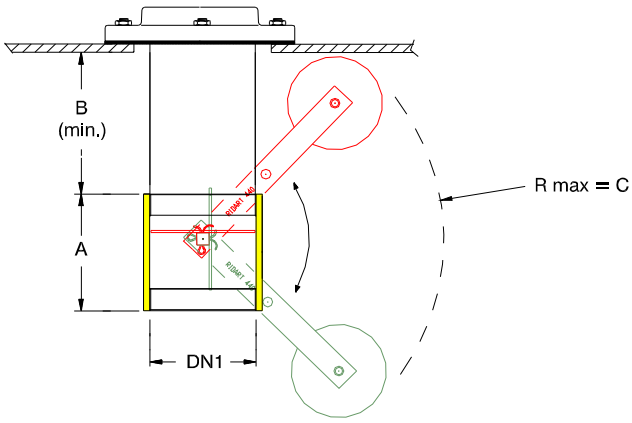
Cod	Data	Descrizione
	31/01/2023	DOE

DATA 4 ITALY - DC07

Fiche technique Limiteur de remplissage / Overfill prevention valve Datasheet
Scheda Valvola limitatrice del carico

VALVOLA LIMITATRICE DI CARICO
OVERFILL PREVENTION VALVE

FIG. 440



CARATTERISTICHE - construction

CORPO IN ALLUMINIO - aluminium body
GALLEGGIANTE IN POLIURETANO (2" E 3") IN RAME 4" - polyuretan float (2" and 3"), copper 4"
MASSIMA VELOCITA' DI SCARICO : 450/500 LITRI MINUTO - maximum flow : 450/500 lt/min
PER BENZINE E GASOLIO - for unleaded and gasoil

TABELLA DIMENSIONALE - dimensional table

CODICE	DN1	DN2	A	B	C	D	E	F
092410	2" GF		95	115	195			
092380	3" GF		95	95	195			
092390	4" GF		110	150	240			

1/4" = 8
3/8" = 10
1/2" = 15
3/4" = 20
1" = 25
1"1/4 = 32
1"1/2 = 40
2" = 50
2"1/2 = 65
3" = 80
4" = 100

SIMBOLOGIA-symbology
M = MASCHIO - male
F = FEMMINA - female
R = ATTACCO RAPIDO quick connection
G = FILETTO GAS - gas thread ISO 228 CILINDRICO ISO 228 cylindrical
GC = FILETTO GAS - gas thread ISO 228 CONICO ISO 228 conical
CS = CASSONI cassoni ISO965 P5 60°
UN = FILETTO - UNI 804 - thread PER ANTINCENDIO fire-proof connections

COMPONENTI FORNIBILI SEPARATAMENTE - spare parts

	DESCRIZIONE - description	CODICE - code
1		
2		
3		
4		
5		

OMOLOGAZIONI
omologations

ATEX

MINISTERO DELL'INTERNO

DATI ED INFORMAZIONI NON SONO IMPEGNATIVI E POSSONO VARIARE IN QUALSIASI MOMENTO E SENZA PREAVVISO
informations can be changed in every moment and without notice

RIDART S.R.L.

ISTRUZIONI DI INSTALLAZIONE, USO, MANUTENZIONE e SICUREZZA

ACCESSORI per SERBATOI
FASCICOLO TECNICO: RIDART 05/14 ATEX (557/Ex-Ab 2167/14)

FIGURA	CODICE ARTICOLO	DESCRIZIONE
21 A	092615 ; 092625 ; 092626	VALVOLA RITEGNO
55 B	092210 ; 092215 ; 092220 ; 092225	VALVOLA ANTISIFONE REGOLABILE
70	086498 ; 086500 ; 086510	TAPPO BOCCA DI CARICO
70 A	086520 ; 086540	TAPPO BOCCA DI CARICO ALLUMINIO
70 B	086504 ; 086505	TAPPO RAPIDO ALLUMINIO
70 C	-	-
70 bis	086499 ; 086499A ; 086502 ; 086513	TAPPO RAPIDO OTTONE ALLUMINIO
80 AL	086550 ; 086555 ; 086560	TAPPO RAPIDO ALLUMINIO
80 OT	086440 ; 086570	TAPPO RAPIDO OTTONE
90	086650	GHIERA ATTACCO RAPIDO
90 AL	086450 ; 086651	GHIERA ATTACCO RAPIDO ALLUMINIO
90 C	-	-
135	092300 ; 092301	SEDE ASTA METRICA
137	-	-
190	086950	SFIATO TERMINALE
198	094445 ; 094446	SFIATO A CARBONI ATTIVI
440	092380 ; 092390 ; 092410	VALVOLA LITATRICE DI CARICO
444	094978 ; 094978 S; 094979	VALVOLA LITATRICE DI CARICO
445	094980	VALVOLA LITATRICE DI CARICO
446	446-50 AL ; 446-50 SS ; 446-80 AL	VALVOLA LITATRICE DI CARICO
2000	MB50 ; MB100 ; MB50 SS ; MB100 SS	RACCORDO
2015	VK50-1 ; VK100-1 ; VK50-1 SS ; VK100-1 SS	TAPPI FEMMINA
1510	1510-01	VALVOLA ANTISIFONE

CARATTERISTICHE

Componenti di sicurezza meccanica da installare dove richiesto per impianti di stoccaggio e distribuzione di carburante o di prodotti chimici (scheda tecnica disponibile sul nostro sito web) di per sé non costituiscono un dispositivo di sicurezza.

POSIZIONAMENTO ed INSTALLAZIONE

Viene utilizzato ove richiesto, fare riferimento alle specifiche omologazioni del Ministero degli Interni e agli schemi di impianto disponibili sul nostro sito web.

MANUTENZIONE

La frequenza dipende dall'utilizzo del prodotto e dalla presenza di corpi estranei nelle tubazioni. Consigliata la rimozione ove possibile e la pulizia almeno una volta ogni 12 mesi, intensificare la manutenzione in condizioni di uso gravoso, eliminare con accuratezza tutti i corpi esterni e depositi di ogni genere presenti all'interno e all'esterno del dispositivo di sicurezza, verificare il corretto funzionamento delle parti mobili e sostituire se necessario ove presenti guarnizioni e molle appena perdono di efficacia e/o di efficienza.

Per qualsiasi informazione contattare il costruttore:
RIDART S.R.L.
21045 Gazzada Schianno (VA) Italy
Tel. (+39) 0332 463301
Email: commerciale@ridart.it
Web: www.ridart.it e www.ridart.it/support

X - Pericolo di esplosione!

La mancata osservanza delle istruzioni contenute in questo capitolo può portare a severi danni alle persone e all'ambiente! Tali istruzioni non prescindono da un utilizzo appropriato dell'attrezzatura e dalle istruzioni riportate nel manuale di istruzioni generico.

GENERALITA'

Le attrezzature **RIDART S.R.L.** non presentano sorgenti di accensione in condizioni di funzionamento normale e di disfunzione prevista purché siano adottate le seguenti misure:

- Corretta installazione.
- Utilizzo nel range di funzionamento definito sulla scheda tecnica del prodotto.
- Adozione delle presenti istruzioni aggiuntive.
- Utilizzo di ricambi autorizzati.
- Non apportare nessuna modifica ai sistemi.

CONDUTTIVITA' ELETTRICA

Tutta l'attrezzatura è costruita in modo da garantire la conducibilità. L'utilizzatore deve preoccuparsi di garantire la continuità con l'impianto e che esso sia messo a terra conformemente ai requisiti cogenti applicabili incluse le indicazioni della TR 50404.

CLASSE di TEMPERATURA

La temperatura superficiale dell'attrezzatura dipende dalla temperatura del fluido convogliato. Assicurarsi che la temperatura massima del fluido non sia superiore a quella massima di superficie ammessa dalla zona di impiego.

ATTENZIONE Per l'utilizzo in aree con presenza di gas la temperatura massima di superficie è definita sui documenti di adempimento alla Direttiva 99/92/CE e rispetta la seguente convenzione.

L'irraggiamento solare o da altre fonti di calore può causare un innalzamento della temperatura superficiale.

CLASSE DI TEMPERATURA	MASSIMA TEMPERATURA DI SUPERFICIE (°C)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

PULIZIA e MANUTENZIONE

L'attrezzatura deve essere adeguatamente immagazzinata, movimentata e mantenuta onde prevenire l'ingresso di materiale ed il deposito di polvere tra le parti mobili. Le attività di manutenzione devono essere svolte esclusivamente da personale specializzato e secondo quanto definito nel manuale di istruzioni generico e con utensili conformi a quanto definito nell'Appendice A della norma UNI EN 1127-1 ed assicurandosi che non vi sia presenza di atmosfera esplosiva.

GARANZIA

- I prodotti sono garantiti per un anno (dalla data di fatturazione) contro tutti i difetti di fabbricazione da noi riconosciuti.
- Eventuali modifiche o manomissioni del prodotto avranno come conseguenza la perdita della garanzia e la possibile perdita di efficacia e efficienza del prodotto stesso.
- Se non verranno da noi installate, non potrà essere preteso alcun indennizzo supplementare al costo stesso della attrezzatura e per qualsiasi causa.

Sede operativa RIDART S.R.L.
Via Adua 17 – 21040 Gazzada Schianno (VA)
Tel. +39 0332 463301
Fax +39 0332 873065
commerciale@ridart.it

Sede legale RIDART S.R.L.
Via A. da Brescia, 2
21013 Gallarate (VA)
C.C.I.A.A. Varese 183072
C.F e P.IVA 01454770122

DECLARATION OF CONFORMITY EU
DICHIARAZIONE DI CONFORMITA' UE

CE

Manufacturer's name
Nome del costruttore — **RIDART S.R.L.**

Manufacturer's address
Indirizzo del costruttore — **Via Adua 17 - Gazzada Schianno (VA)**

Herewith declares under own exclusive responsibility conformity of the Products
Dichiara sotto la propria responsabilità esclusiva la conformità del prodotto

Product description:
Descrizione del prodotto

ACCESSORI per SERBATOI
ACCESSORIES for TANKS
Fig. 21 A ; 55 B ; 70 ; 70 A ; 70 B ;70 C ; 70 bis ; 80 AL
80 OT ; 90 ; 90 AL ; 90 C ; 135 ;137 ; 190 ; 198 ; 440 ; 444
445 ; 446 ; 2000 ; 2015 ; 1510
(s.n. 2017)

Marking
Marcatura — Ex **II 2 G**

Certificate Number edit by TUV Rheinland,
Notified Body Number 0035
Numero certificato emesso da TUV Rheinland,
Organismo Notificato Numero 0035 — **557/Ex-Ab 2167/14**

Technical File Number
Numero Fascicolo Tecnico — **RIDART 05/14 ATEX**

In accordance with applicable regulations below:
Soddisfa la seguente Direttiva:

EU Directive / Direttiva UE: **2014/34/UE - ATEX**

As in accordance to the European Harmonized Standards applied when the certificate was issued:
In quanto conforme alle Norme Europee Armonizzate applicabili alla data di emissione del certificato sopra indicato:

EN 13463-1:2009; EN 1127-1:2011; EN13463-5:2011;

Gazzada Schianno lì 30 Marzo 2020

firma
Davide Meneghini (CEO)

INSTALLATION, USE, MAINTENANCE and SAFETY INSTRUCTIONS

ACCESSORIES for TANKS
TECHNICAL FILE: RIDART 05/14 ATEX (557/Ex-Ab 2167/14)

FIGURE	PRODUCT NUMBER	DESCRIPTION
21 A	092615 ; 092625 ; 092626	CHECK VALVE
55 B	092210 ; 092215 ; 092220 ; 092225	VALVE ADJUSTABLE ANTI-SIPHON
70	086498 ; 086500 ; 086510	FILLER PLUG NECK
70 A	086520 ; 086540	FILLER PLUG NECK ALUMINIUM
70 B	086504 ; 086505	QUICK PLUG ALLUMINIO
70 C	-	-
70 bis	086499 ; 086499A ; 086502 ; 086513	QUICK PLUG BRASS ALUMINIUM
80 AL	086550 ; 086555 ; 086560	QUICK PLUG ALUMINIUM
80 OT	086440 ; 086570	QUICK PLUG BRASS
90	086650	RING QUICK
90 AL	086450 ; 086651	RING QUICK ALUMINIUM
90 C	-	-
135	092300 ; 092301	SEAT METRIC ROD
137	-	-
190	086950	VENT
198	094445 ; 094446	ATTIVE CARBONS VENT
440	092380 ; 092390 ; 092410	OVERFILL VALVE
444 F	094978 ; 094978 S ; 094979	OVERFILL VALVE
445	094980	OVERFILL VALVE
446	446-50 AL ; 446-50 SS ; 446-80 AL	OVERFILL VALVE
2000	MB50 ; MB100 ; MB50 SS ; MB100 SS	LINK
2015	VK50-1 ; VK100-1 ; VK50-1 SS ; VK100-1 SS	CAP
1510	1510-01	VALVE ANTI-SIPHON

FEATURES
Mechanical safety device to be installed on fuel plants or chemical products (technical data sheet available on our website.

INSTALLATION and POSITIONING
Use device where is required, refer to the specific approval of the Italian “Ministero degli Interni” and the system diagrams available on our web site.

MAINTENANCE
Frequency depends on product’s using and foreign bodies in the pipe. If is possible removing and cleaning flame arrestor at least once every 12 months, intensify the maintenance in heavy using, carefully remove all external bodies and deposits, inside and outside of the safety device, check the proper functioning of moving parts and replace if necessary any seals and springs when their effectiveness and efficiency decrease.

For any questions call the manufacturer:
RIDART S.R.L.
21045 Gazzada Schianno (VA) Italy
Tel. (+39) 0332 463301
Email: commerciale@ridart.it
Web: www.ridart.it e www.ridart.it/support

X - Danger Explosion!
Failure to follow the instructions contained in this section may lead to severe damage to people and environment! These instructions do not disregard the proper use of the equipment and the instruction manual of generic instructions.

GENERAL

All RIDART's equipment are not sources of ignition in normal operation or in malfunction conditions, you have to respect these following instructions:

- Correct installation.
- Use only into the operating range defined in the Product Data Sheet
- Use all additional instructions.
- Use only RIDART and authorized spare parts.
- Make no changes to the systems.

ELECTRICAL CONTINUITY

All RIDART's equipment are made to ensure the electrical conductivity.
The user and the installer must take care to ensure continuity with the system and the grounding in accordance with legal requirements including in TR 50404.

TEMPERATURE CLASS

The equipment surface temperature depends on the temperature of the fluid conveyed. The maximum temperature of the fluid must be less than allowed maximum surface area of use.

ATTENTION! For use in areas with gas the maximum surface temperature is defined on the documents for the implementation of the Directive 99/92/EC and complies with the following convention. The sunlight or close to other heat sources may cause an increase in the surface temperature.

Temperature Class	Max Surface Temp. (C°)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

CLEANING and MAINTENACE

The equipment must be properly stored, handled and maintained in order to prevent the external material in and the dust deposition between the moving parts. The maintenance activities must be carried out by specialist personnel, done as defined in the manual of general instructions with right tools like in Appendix A of the UNI EN 1127-1 and without explosive atmosphere.

WARRANTY

- Products are warranted for one year (from invoice's data) against all manufacturing defects that we recognized.
- Any product 's modifications or tampering will lose your warranty and equipment's effectiveness and efficiency, please don't do it.
- Any extra compensation cannot be demand, if we don't install equipment or for any other reason.

INSTRUCTIONS D'INSTALLATION, UTILISATION, ENTRETIEN et SECURITE

ACCESSOIRES pour TANKS
FICHE TECHNIQUE : RIDART 05/14 ATEX (557/2167/14 Ab Ex)

FIGURE	PRODUCT NUMBER	DESCRIPTION
21 A	092615 ; 092625 ; 092626	CLAPET
55 B	092210 ; 092215 ; 092220 ; 092225	CLAPET RÉGLABLE ANTI-SIPHON
70	086498 ; 086500 ; 086510	BOUCHE FICHE
70 A	086520 ; 086540	BOUCHE FICHE ALUMINIUM
70 B	086504 ; 086505	RAPIDES FICHE ALUMINIUM
70 C	-	-
70 bis	086499 ; 086499A ; 086502 ; 086513	RAPIDES FICHE LAITON ALUMINIUM
80 AL	086550 ; 086555 ; 086560	RAPIDES FICHE ALUMINIUM
80 OT	086440 ; 086570	RAPIDES FICHE LAITON
90	086650	ECROU RAPIDES RAPIDO
90 AL	086450 ; 086651	ECROU RAPIDES ALUMINIUM
90 C	-	-
135	092300 ; 092301	SELLE MÉTRIQUE TIGE
137	-	-
190	086950	EVENT
198	094445 ; 094446	EVENT CARBONES ACTIFS
440	092380 ; 092390 ; 092410	DÉBORDEMENT CLAPET
444 F	094978 ; 094978 S ; 094979	DÉBORDEMENT CLAPET
445	094980	DÉBORDEMENT CLAPET
446	446-50 AL ; 446-50 SS ; 446-80 AL	DÉBORDEMENT CLAPET
2000	MB50 ; MB100 ; MB50 SS ; MB100 SS	-
2015	VK50-1 ; VK100-1 ; VK50-1 SS ; VK100-1 SS	BOUCHON
1510	1510-01	CLAPET ANTI-SIPHON

CARACTÉRISTIQUES

L'appareil de sécurité mécanique à installer sur la ligne de carburant au des produits chimiques (fiche technique/**s**chéma disponible sur notre site).

INSTALLATION

A utiliser où est nécessaire, reportez-vous à l'homologation spécifiques du Ministère de l'intérieur (Italienne) et au fiches techniques disponibles sur notre site Web.

MAINTENANCE

Entretien dépend de l'utilisation du produit et à la présence de corrosion dans la tuyauterie, chaque année, une inspection/nettoyage sera réalisée par de personnel habilité La première intervention devra avoir lieu au plus tard 12 mois après la mise en service , intensifier l'entretien dans des conditions d'utilisation intensive, éliminer avec précision tout genre des corps qu'ils ce dépôt à l'intérieur et à l'extérieur du dispositif de sécurité. vérifier le bon fonctionnement des pièces mobiles et remplacer si nécessaire tout joints et ressort de l'évent permettant le bon fonctionnement.

Pour toute information s'il vous plaît contacter le fabricant:

RIDART S.R.L.
21045 Gazzada Schianno (VA) Italy
Tel. (+39) 0332 463301
Email: commerciale@ridart.it
Web: www.ridart.it e www.ridart.it/support

X - Risque d'explosion

Le non-respect des instructions contenues dans la présente section peut conduire à de graves dommages aux personnes et l'environnement! Ces instructions ne tiennent pas compte de l'utilisation appropriée de l'équipement et le manuel d'instruction génériques.

.

GENERALITES'

Tous les équipements RIDART ne sont pas des sources d'ignition en fonctionnement normal ou dans des conditions de dysfonctionnement, vous devez respecter ces instructions suivantes:

- Installation correcte.
- Il ne faut pas dépasser le fonctionnement définie dans la fiche technique du produit.
- Utilisez toutes les instructions supplémentaires.
- Utilisez uniquement les pièces de rechange autorisées.
- Ne modifiez pas les systèmes.

CONDUCTIVITE ' ELECTRIC

Tous les équipements RIDART sont fabriqué pour assurer la conductivité électrique. L'utilisateur et l'installateur doit prendre soin d'assurer la continuité avec le système et mise à la terre conformément aux exigences légales, y compris dans TR 50404.

CLASSE de TEMPÉRATURE

La température de la surface de l'équipement dépend de la température du fluide convoyé. Assurez-vous que la température maximale du fluide soit inférieure à celle maximum de surface d'utilisation autorisée.

ATTENTION! Pour une utilisation dans des zones où il y a la présence de gaz, la température de surface maximale est définie sur les documents pour la mise en œuvre de la directive 99/92/CE est conforme à la convention suivante. La lumière du soleil ou à proximité d'autres sources de chaleur peuvent provoquer une augmentation de la température de surface.

Temperature Class	Max Surface Temp. (C°)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

NETTOYAGE et MAINTENANCE

L'équipement doit être correctement stocké, manipuler et maintenu afin d'éviter la filtration de matière et le dépôt de poussière entre les parties mobiles. Les activités de maintenance doivent être effectués par de personnel spécialisé ayant une connaissance des risques et des moyens à mettre en oeuvre pour les prévenir, selon la définition rapporté dans le manuel d'instructions générales avec des outils conforme comme dans l'annexe A de la norme **UNI EN 1127-1** s'assurer qu'il n'y pas présence des risques associés à l'atmosphères: intoxication, inflammation, explosion.

GARANTIE

- Les produits sont garantis pendant 12 mois à partir de la date de facturation (sauf conditions particulières).
- Toute modification ou reparation réalisée sur les produits donnera lieu à la perte de la garantie et il peut provoquer le dysfonctionnement de produit.
- Toute les installations doivent être réalisée par le constructeur , dans les cas contraire Il ne peut pas être réclamé des indemnités supplémentaires pour aucun raison.

INSTALLATION, NUTZUNG, WARTUNG und Sicherheitshinweise

ZUBEHÖR für BECKEN
TECHNISCHE KARTE: RIDART 14/05 ATEX (557/2167/14 Ab Ex)

FIGURE	PRODUCT NUMBER	DESCRIPTION
21 A	092615 ; 092625 ; 092626	RÜCKSCHLAGVENTIL
55 B	092210 ; 092215 ; 092220 ; 092225	VENTIL ADJUSTABLE ANTI-SIPHON
70	086498 ; 086500 ; 086510	Füllstopfen STECKER
70 A	086520 ; 086540	Füllstopfen STECKER ALUMINIUM
70 B	086504 ; 086505	KURZ STECKER ALUMINIUM
70 C	-	-
70 bis	086499 ; 086499A ; 086502 ; 086513	KURZ STECKER BRASS ALUMINIUM
80 AL	086550 ; 086555 ; 086560	KURZ STECKER ALUMINIUM
80 OT	086440 ; 086570	KURZ STECKER BRASS
90	086650	MUTTER SCHNELL
90 AL	086450 ; 086651	MUTTER SCHNELL ALUMINIUM
90 C	-	-
135	092300 ; 092301	SITZ METRISCH STAB
137	-	-
190	086950	ENTLÜFTEN
198	094445 ; 094446	ENTLÜFTEN Aktivkohle
440	092380 ; 092390 ; 092410	Überfüllventil
444 F	094978 ; 094978 S ; 094979	Überfüllventil
445	094980	Überfüllventil
446	446-50 AL ; 446-50 SS ; 446-80 AL	Überfüllventil
2000	MB50 ; MB100 ; MB50 SS ; MB100 SS	LINK
2015	VK50-1 ; VK100-1 ; VK50-1 SS ; VK100-1 SS	STOPFN
1510	1510-01	VENTIL ANTI-SIPHON

EIGENSCHAFTEN
Mechanische Sicherheitsvorrichtung installiert werden auf Brennstoffanlagen oder chemischen Erzeugnissen (technisches Datenblatt auf unserer Website).

INSTALLATION und AUFSTELLUNG
Das Absperrventil ist entworfen, um eine Kraftstoffleckage aus dem Kanal von einem Auslass eines Vakuumsystems mit Tauchpumpe im Falle eines Feuers oder eines Unfalls mit einer Schädigung der Struktur verhindern. Wird verwendet, wenn erforderlich, nur in die vertikale Position, beziehen sich auf die ausdrückliche Zustimmung des italienischen "Ministero degli Interni" und die Systemdiagramme finden Sie auf unserer Website.

INSTANDHALTUNG
Frequenz hängt von Produkten und Fremdkörpern in das Rohr. Wenn möglich entfernen und Flammensperre mindestens einmal alle 12 Monate Reinigung, intensivieren, um die Wartung in schweren verwenden, entfernen Sie sorgfältig alle externen Stellen und Einlagen, innerhalb und außerhalb der Sicherheitseinrichtung , überprüfen Sie die einwandfreie Funktion der beweglichen Teile und bei Bedarf ersetzen jede Dichtungen und Federn, wenn ihre Wirksamkeit und Effizienz zu verringern.

Bei Fragen rufen Sie den Hersteller:
RIDART S.R.L.
21045 Gazzada Schianno (VA) Italy
Tel. (+39) 0332 463301
Email: commerciale@ridart.it
Web: www.ridart.it e www.ridart.it/support

X - Gefahr Explosion!
Wenn die Anweisungen in diesem Abschnitt enthaltenen folgen kann zu schweren Schäden für Menschen und Umwelt führen! Diese Anweisungen ignorieren nicht die ordnungsgemäße Verwendung der Ausrüstung und der Bedienungsanleitung allgemeine Anweisungen.

GENERAL

Alle RIDART der Geräte keine Zündquellen im Normalbetrieb oder bei Störung Bedingungen sind, müssen Sie diese folgenden Hinweise zu beachten:

• Die korrekte Installation.
• Verwenden Sie nur in den Arbeitsbereich im Produktdatenblatt definiert
• Verwenden Sie alle weiteren Anweisungen.
• Verwenden Sie nur RIDART und autorisierte Ersatzteile .
• Nehmen Sie keine Änderungen an den Systemen.

ELEKTROGANG

Die gesamte Ausrüstung des RIDART gemacht werden, die elektrische Leitfähigkeit zu gewährleisten.
Der Benutzer und der Installateur muss darauf achten, die Kontinuität mit dem System und der Erdung in Übereinstimmung zu gewährleisten, mit den gesetzlichen Vorschriften, einschließlich in TR 50404.

TEMPERATURKLASSE

Die Ausrüstung Oberflächentemperatur hängt von der Temperatur des Fluids gefördert wird. Die maximale Temperatur des Fluids muss kleiner sein als maximal zulässige Oberfläche der Nutzung.

ACHTUNG! Für den Einsatz in Bereichen mit Gas wird die maximale Oberflächentemperatur auf den für die Durchführung der Richtlinie 99/92 / EG festgelegt und entspricht der folgenden Konvention. Das Sonnenlicht oder in der Nähe anderer Wärmequellen kann eine Erhöhung der Oberflächentemperatur führen.

Temperature Class	Max Surface Temp. (C°)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Reinigung und Instandhaltung

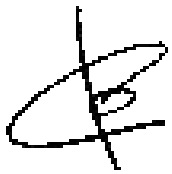
Das Gerät muss ordnungsgemäß gelagert werden, behandelt und gepflegt, um das äußere Material in und die Staubablagerung zwischen den beweglichen Teilen zu verhindern. Die Wartungsarbeiten müssen von Fachpersonal durchgeführt werden, erfolgen, wie im Handbuch der allgemeinen Anweisungen mit richtigen Werkzeugen definiert, wie in Anhang A des UNI EN 1127-1 und ohne explosionsfähige Atmosphäre.

GARANTIE

• Die Produkte werden für ein Jahr (von Rechnungen Daten) gegen alle Fabrikationsfehler garantiert, dass wir anerkannt.
• Jedes Produkt, 's Änderungen und Manipulationen wird die Garantie und Ausrüstung Effektivität und Effizienz verlieren, fügen Sie es nicht tun.
• Jede zusätzliche Kompensation kann nicht gefragt sein, wenn wir aus einem anderen Grund nicht Ausrüstung installieren oder.

All.4.2.2 CAMINI DI SCARICO FUMI

DATA SHEET
CERTIFICATI
VERIFICHE DI CALCOLO STRUTTURALI



Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente	**GIS.IMO S.r.l.** centro direzionale quattrotorri 06132 PERUGIA	Tél. : +39 075 517 29 83 Fax : +39 075 518 12 88
Assistente del committente	**GARRETTI ASSOCIATI S.r.l.** via Trieste, 9 - 20146 MILANO www.garrettiassociati.it	Tél. : +39 02 430 6931 Fax : +39 02 480 170 51
Progetto architettonico	**GARRETTI ASSOCIATI S.r.l.** via Trieste, 9 - 20146 MILANO www.garrettiassociati.it	Tél. : +39 02 430 6931 Fax : +39 02 480 170 51
Opere edili e prefabbricati	**GENERALE PREFABBRICATI S.p.a** centro direzionale quattrotorri 06132 PERUGIA www.generaleprefabbricatispa.com	Tél. : +39 075 517 29 83 Fax : +39 075 518 12 88
Impianti meccanici	**OMEGA CONCEPT IMPIANTI E SISTEMI S.p.a.** Via Chiese, 72 - 20126 - MILANO www.engie-axima.fr	Tél. : +39 02 8180951 Fax : +39 02 8135163
impianti elettrici/dati	**ENGIE CONTRACTING ITALIA S.r.l.** Via Chiese, 72 - 20126 - MILANO www.engie.com	Tél. : +39 02 94399262 Fax : +39 02 94399655
	SCHNEIDER ELECTRIC S.p.A. Via Circonvallazione Est, 1 - 24040 STEZZANO (BG) www.schneider-electric.com	Tél. : +39 0354151111 Fax : +39 0354153200
	ENERIA Rue de Longpont - BP 10202 - 91311 MONTLHERY Cedex - FRANCE www.eneria.fr	Tél. : +33 (0) 169802100 Fax : +33 (0) 169802150
Progettazione antincendio	**STUDIO TECNICO ZACCARELLI S.r.l.** via Ludovico il Moro, 17 - 20143 MILANO www.studiozaccarelli.it	Tél. : +39 02 891 200 81 Fax : +39 02 813 962 8
Supervisione	**ITALSOCOTEC S.p.a.** Via Pontaccio,12/A- 20121 Milano italsocotec@italsocotec.it	Tél. : +39 02 89051500 Fax : +39 02 89051501

Cod	Data	Descrizione
	31/01/2023	DOE

DATA 4 ITALY - DC07 Milan

Fiche technique Cheminée / Chimney Datasheet

Scheda Camino

CANNE FUMARIE MONOCONDOTTO E

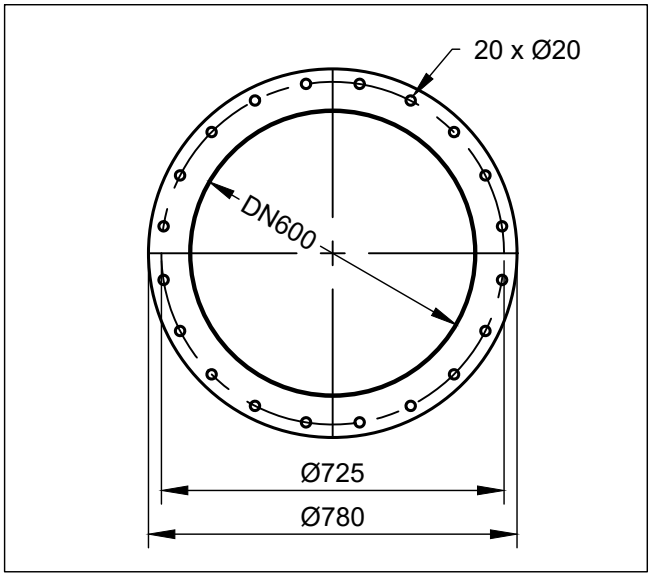
Camino di tipo E: 2 unità

Condotto dei fumi resistente:
Diámetro: Ø 600mm
Materiale: AISI 304

Guaina esterna :
Diámetro: Ø700 mm
Materiale: AISI 304

Coibentazione:
Lana di roccia (100 kg/m³):
50mm

Flangio stacco



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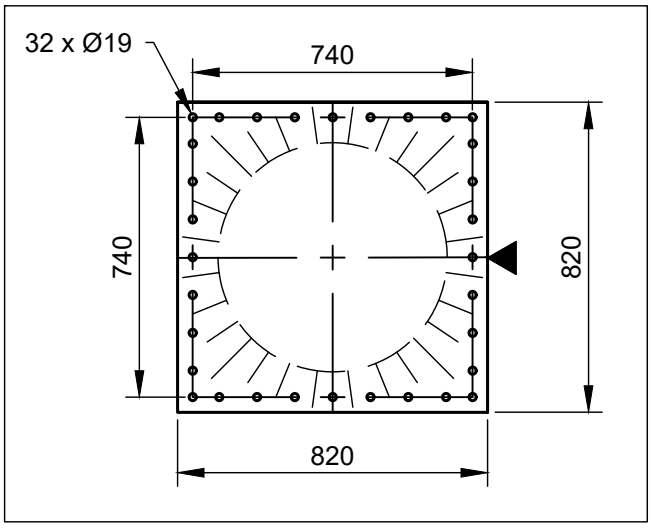

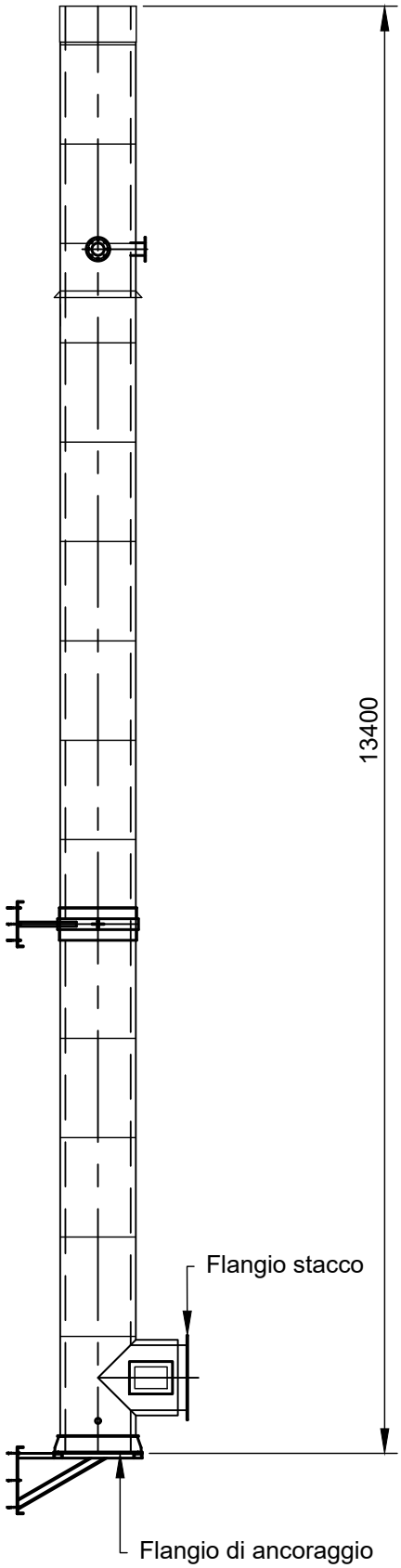

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Rev.: A	Vref.: Data 4-DC7	Date: 20/12/2022	Nref.: 22000029

CANNE FUMARIE MONOCONDOTTO E

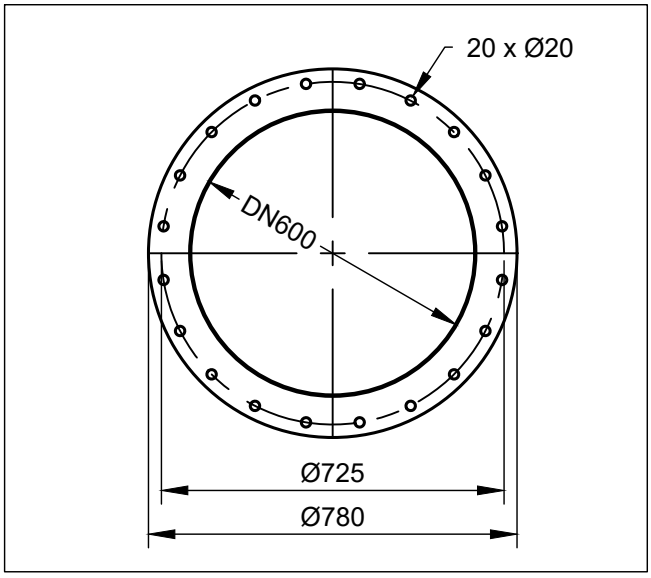
Camino di tipo F: 2 unità

Condotto dei fumi resistente:
Diámetro: Ø 600mm
Materiale: AISI 304

Guaina esterna :
Diámetro: Ø700 mm
Materiale: AISI 304

Coibentazione:
Lana di roccia (100 kg/m³):
50mm

Flangio stacco



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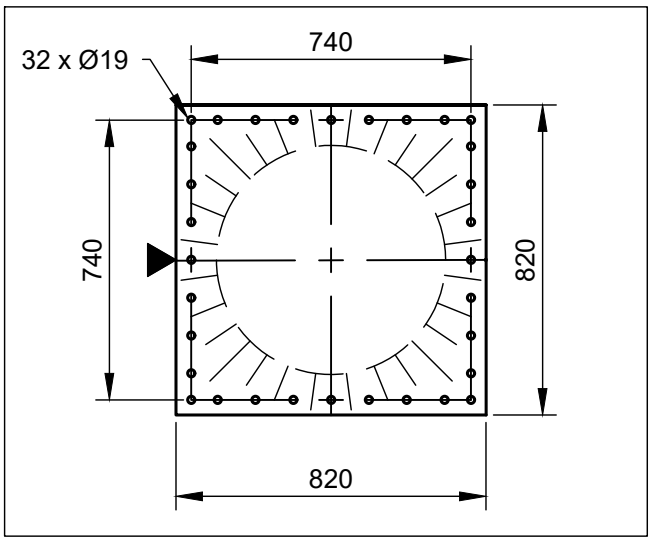

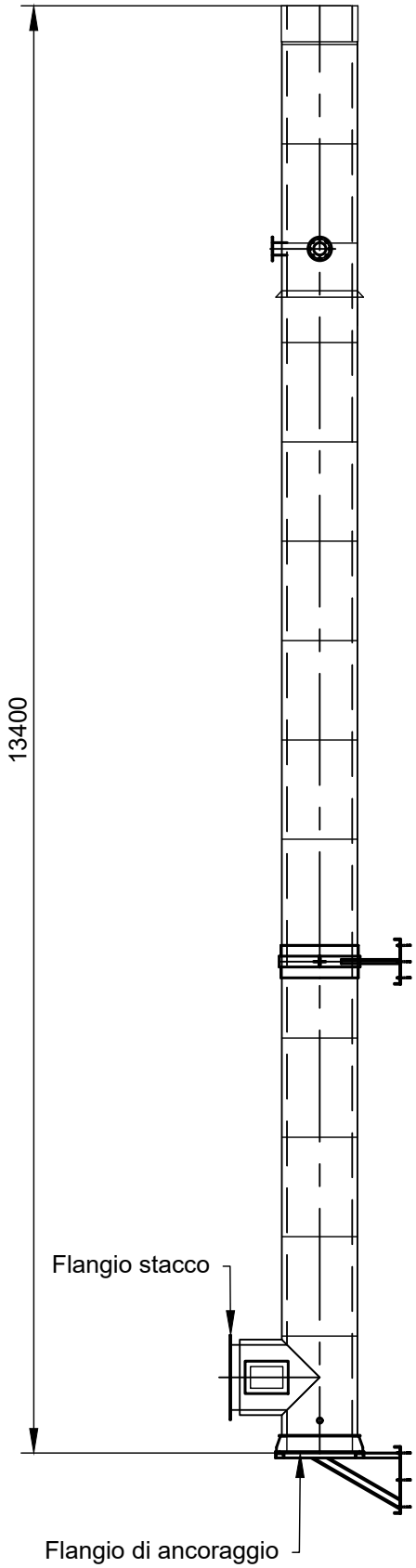

No. P: 1	CLIENT: AN CAMINI	1:65	DINAK
Rev.: A	Vref.: Data 4-DC7	Date: 20/12/2022	Nref.: 22000029

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

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Tél. : +33 (0) 169802100
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Progettazione antincendio

STUDIO TECNICO ZACCARELLI S.r.l.
via Ludovico il Moro, 17 - 20143 MILANO
www.studiozaccarelli.it
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Fax : +39 02 813 962 8

Supervisione

ITALSOCOTEC S.p.a.
Via Pontaccio,12/A- 20121 Milano
italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

Cod	Data	Descrizione
	31/01/2023	DOE

DATA 4 ITALY - DC07 Milan
Certificat Cheminée / Chimney Certifcate
Certificato camini

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

CERTIFICATE

Conformity of the Factory Production Control

0036-CPR-1090-1.01030.TÜV SÜD.2022.001

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the following construction product:

Construction product	**Structural components and kits for steel structures to EXC3 according to EN 1090-2**
Intended use	for load-bearing structures in all types of buildings
CE – marking method	ZA.3.2 to ZA.3.5 acc. to EN 1090-1:2009+A1:2011
	produced by or for
Manufacturer	**DINAK S.A** **Camiño do Laranxo, 19** **36216 Vigo** **SPAIN**
Manufacturing plants production facilities of the manufacturer	see reverse
Confirmation	This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the harmonised standard **EN 1090-1:2009+A1:2011** under system 2+ are applied, and that the factory production control fulfills all the prescribed requirements stated therein.
Date of first issue	06.10.2022
Next Surveillance audit	05.10.2023
Period of validity	This certificate will remain valid as long as the test methods and/or the factory production control requirements included in the harmonised standard used to assess the performance of the declared characteristics do not change, and the product and the manufacturing conditions in the plants are not modified significantly.
Remarks	see reverse
Place and date of issue	Munich, 06.10.2022 Schlotterer

Notified Body, Nr. 0036

Dipl.-Ing. (FH) Stäblein
certification body

DAkkS Deutsche Akkreditierungsstelle D-ZE-14153-06-00

TÜV SÜD Industrie Service GmbH 00 36 Notified Body

EQ3230684

Certificate number: 0036-CPR-1090-1.01030.TÜV SÜD.2022.001

Manufacturing plants

1. **J.Meixoeiro S.L. Construcciones Metálicas**
   Polígono Industrial da Pasaxe 79, 36316 Gondomar – Pontevedra, SPAIN
2. **Zerotec**
   Polígono Industrial da Pasaxe 28, 36316 Gondomar – Pontevedra, SPAIN

Remarks

The Notified Body - 0036 TÜV SÜD Industrie Service GmbH has performed the initial inspection of the/of manufacturing plant(s) and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control.
Upon successful completition of the next continuous surveillance, a new certificate will be issued.

General provisions

The regulations as addressed in the below listed documents in their respective relevant version shall apply:

a) General Terms and Conditions of Business of TÜV SÜD Industrie Service GmbH

b) Testing and Certification Regulations of TÜV SÜD Group

c) Certification Contract between TÜV SÜD Industrie Service GmbH and the customer (manufacturer) as named in the certificate

d) DVS Guideline 1711 of the German Society of Welding (the guideline shall generally apply except Annex B)

e) General provisions/ conditions for validity of Factory Production Control Certificates according to EN 1090-1 and of the associated Welding Certificates (Request of Certification, Annex 1 of Doc.-No. QS/PÜZ0005/AT)

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Notified Body
Nr. 0036

Industrie Service

Certificate of conformity of the factory production control

0036 CPR 90220 061
Revision 01

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Free-standing chimney: cylindrical steel fabrications for use in single wall steel chimneys and steel liners

free-standing chimney	**EN 13084-7**	**Txxx HO D/W L/M/H/Vxx x.xxxx O/G** (characteristics chosen related to project evaluation based on EN 13084-6 / EN 13084-7)

for details of classification see page 2

produced by

DINAK S.A.
Camiño do Laranxo, 19
36 216 Vigo, Spain

in the manufacturing plants

Poligono Industrial A Pasaxe, 28, 36319 Vincios-Gondomar, SPAIN
Poligono Industrial A Pasaxe, 79, 36319 Vincios-Gondomar, SPAIN

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 13084-7:2012

under system 2+ are applied and that the factory production control fulfils all the prescribed requirements set out above.

This certificate was first issued on 2022-10-18 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.

Munich, 2022-10-18

Johannes Steiglechner
Leiter Zertifizierungsstelle Bauprodukte

TÜV®

Industrie Service

free-standing chimney EN 13084-7

models

Temperature level	Pressure level	Condensate resistance	Durability	Flue liner material specifications	Sootfire resistance	Pol. Ind. A Pasaxe 79	Pol. Ind. A Pasaxe 28
T100	H0	D	L10	1.8958, 1.8959, 1.8961, 1.8946, 1.4301	O	X	X
T100	H0	W	L10	1.4404	O	X	X
T250	H0	D	L10	1.8958, 1.8959; 1.8961, 1.8946, 1.4301	O	X	X
T250	H0	D	L20	1.8958, 1.8959, 1.8961, 1.8946, 1.4301	O	X	X
T250	H0	D	M10	1.4301	O	X	X
T250	H0	D	M20	1.4301	O	X	X
T250	H0	D	H10	1.4301	O	X	X
T250	H0	D	H20	1.4301	O	X	X
T250	H0	W	L10	1.4404	O	X	X
T250	H0	W	L20	1.4404	O	X	X
T250	H0	W	M10	1.4404	O	X	X
T250	H0	W	M20	1.4404	O	X	X
T250	H0	W	H10	1.4404	O	X	X
T250	H0	W	H20	1.4404	O	X	X
T250	H0	W	V10	1.4539	O	X	--
T250	H0	W	V20	1.4539	O	X	--
T400	H0	D	L10	1.8958, 1.8959, 1.8961, 1.8946, 1.4301	O, G	X	X
T400	H0	D	L20	1.8958, 1.8959, 1.8961, 1.8946, 1.4301	O, G	X	X
T400	H0	D	M10	1.4301	O, G	X	X
T400	H0	D	M20	1.4301	O, G	X	X
T400	H0	W	L10	1.4404	O, G	X	X
T400	H0	W	L20	1.4404	O, G	X	X
T400	H0	W	M10	1.4404	O, G	X	X
T400	H0	W	M20	1.4404	O, G	X	X
T400	H0	D	H10	1.4404	G	X	X
T400	H0	W	H10	1.4404	O	X	X
T400	H0	D	H20	1.4404	G	X	X
T400	H0	W	H20	1.4404	O	X	X
T400	H0	W	V10	1.4539	G	X	--
T400	H0	W	V20	1.4539	G	X	--
T500	H0	D	L10	1.8958, 1.8959, 1.8961, 1.8946	O, G	X	X
T500	H0	D	L20	1.8958, 1.8959, 1.8961, 1.8946	O, G	X	X
T550	H0	D	L10	1.4301	O	X	X
T550	H0	D	L20	1.4301	O	X	X
T550	H0	D	M10	1.4301	O	X	X
T550	H0	D	M20	1.4301	O	X	X
T550	H0	D	H10	1.4404	G	X	X
T550	H0	W	H10	1.4404	O	X	X
T550	H0	D	H20	1.4404	G	X	X
T550	H0	W	H20	1.4404	O	X	X
T550	H0	W	V10	1.4539	G	X	--
T550	H0	W	V20	1.4539	G	X	--
T550	H0	D	L10	1.7335	O	X	--
T550	H0	D	L20	1.7335	O	X	--

DINAK

AN CAMINI

DECLARATION OF PERFORMANCE
Nº: 1404 / EN - 1090-1

1. Name and Identification code
AN CAMINI / Data 4 - DC7
22000029

2. Name and address of the Manufacturer
DINAK SA.
CAMIÑO DO LARANXO, 19 / 36216 VIGO PONTEVEDRA / ESPAÑA

3. Intended use

Self standing Chimney consisting of a circular rigid flue gasses channel thermally insulated with high density rockwool (100Kg /m3), with an outer cover Factory fitted, supported and guided by low thermal bridge elements

4. System of assessment and verification of constancy of performance: **+2**

5. Notified Body
TÜV (0036)
Conformity of the Factory Production Control
Sistema +2
0036-CPR-1090-1.01030.TÜV SÜD.2022.001

6. Declared performance

Essencial Characteristics	Performance		Harmonised technical specification
Tolerances on dimensions and Shape	Geometrical, functional and essential tolerances		EN 1090-2
Weldability	AISI 304		EN 10088-2
	—		—
	—		—
	—		—
Fracture toughness	AISI 304	100(J)	EN 10088-2
	—	—	—
	—	—	—
	—	—	—
Load bearing capacity	Design according to harmonised european standards		EN 1990
			EN 1993-3-2
			EN 1993-3-1
			EN 1998-1
			EN 1991-1-4
Fatigue strength	Design according to harmonised european standards		EN 1993-1-9
			EN 1993-3-2
			EN 1993-3-1
Resistance to fire	NPD		
Reaction to fire	Non combustible element A1		EN-13501-1
Realease of Cadmium and its compounds	NPD		
Emission of radioactivity	NPD		
Durability	AISI 304		EN 1993-1-4
Fabricación	Execution class EXC3		EN-1090-1

- The performances of the product identified in point 1 is in conformity with the declared performance in point 6.
- This declaration of performance is issued, according the Standard (UE) n.305/2011, under the responsibility of the manufacturer in point 2.
- Signed for and behalf of the Manufacturer by:

NAME AND SIGN:

Place and date of emission:
VIGO, a 20/12/2022

DINAK

AN CAMINI

DECLARATION OF PERFORMANCE
Nº: 1405 / EN - 13084-7

1. Name and Identification code
AN CAMINI / Data 4 - DC7
22000029

2. Name and address of the Manufacturer
DINAK SA.
CAMIÑO DO LARANXO, 19 / 36216 VIGO PONTEVEDRA / ESPAÑA

3. Idended use

Self standing Chimney consisting of a circular rigid flue gasses channel thermally insulated with high density rockwool (100Kg /m3), with an outer cover Factory fitted, supported and guided by low thermal bridge elements

4. System of assessment and verification of constancy of performance: +2

5. Notified Body
TÜV (0036)
Conformity of the Factory Production Control System +2
0036-CPR-90220-061

6. Declared performance

Essencial Characteristics	Performance	Harmonised technical specification
Resistance to soot-fire	O	EN 13084-6
Gas tightness/leakage	H0	EN 13084-6
Flow resistance of chimney sections,fittings and terminals	Roughness according to standard	EN 13084-1
Dimensioning and Thermal resistance	Design according to EN 13384-1	EN 13384-1
Thermal shock resistance	NPD	EN 13084-7
Mechanical resistance and stability	Design according to European harmonised Standards	EN 1990
		EN 1993-3-2
		EN1993-3-1
		EN 1991-1-4
Freeze thaw resistance	NPD	EN 13084-7
Durability against Corrosion	L10	EN 13084-7

Designation according to standard EN 13084-7

T550 - H0 - D - L10 - 1.4301 - O

- The performance of the product identified in point 1 is in conformity with the declared performance in point 6.
- This declaration of performance is issued, according the Standard (UE) n.305/2011, under the responsibility of the manufacturer in point 2.
- Signed for and behalf of the Manufacturer by:

NAME AND SIGN:

Place and date of emission:

VIGO, a 20/12/2022

ACERINOX EUROPA
FABRICA DEL CAMPO DE GIBRALTAR
PALMONES (LOS BARRIOS)
TFNO. (34) - 956 62 93 00
FAX (34) - 956 62 93 11
P.O. BOX 83
11370 LOS BARRIOS (CADIZ)
ESPAÑA

by Accredited Body

INSPECTION CERTIFICATE

CERTIFICADO DE INSPECCION

3.1

ACCORDING TO SEGÚN: **EN 10204**

CERTIFICATE Nº CERTIFICADO Nº: **G0 2022 1614 10001 C**

CUSTOMER CLIENTE
DINAK,S.A.
CAMIÑO DO LARANXO S N
PONTEVEDRA

OUR ORDER Nº N/PEDIDO: **S8 2799**

YOUR ORDER Nº S/PEDIDO: **170841**

TRADE MARK SELLO DEL FABRICANTE: ACERINOX

INSPECTOR'S STAMP SELLO DEL INSPECTOR: *4511*

STEELMAKING PROCESS PROCESO DE ACERÍA: *A.O.D.*

REQUIREMENTS NORMAS APLICABLES	INTERGRANULAR CORROSION CORROSIÓN INTERGRANULAR	GRADE MATERIAL		FINISH ACABADO
EN 10028-7/TRD 100/AD-2000-MERKBLATT W0/W2/W10 PED2014/68/EU	EN ISO 3651-2	Acx 120	1.4301	2B

COIL / BOX BOBINA / CAJA	CONTENT CONTENIDO	DIMENSIONS (mm) DIMENSIONES THICKNESS ESPESOR	WIDTH ANCHO	LENGTH LARGO	MARKS MARCA	QUANTITY CANTIDAD	TEST Nº PROBETA
011NWXBAZ1	011NWX B	3,000	1500,00	1894,00		13	011NWX C
011NWXCAAAZ4	011NWX C	3,000	1500,00	1894,00		24	011NWX C

CHEMICAL ANALYSIS / COMPOSICIÓN QUÍMICA (%)

HEAT Nº COLADA	C	CR	MN	N	NI	P	S	SI
REQUIREMENTS REQUISITOS	0,070	17,000 19,500	2,000	0,110	8,000 10,500	0,045	0,015	1,000
1NWX	0,022	18,035	1,828	0,076	8,005	0,035	0,002	0,372

MECHANICAL PROPERTIES / CARACTERÍSTICAS MECÁNICAS

TEST Nº PROBETA	PROBE SIT	PROBE TYPE	Rm N/mm2	Rp 0.2 N/mm2	Rp 1.0 N/mm2	A5 %
REQUIREMENTS REQUISITOS			540,00 750,00	230,00	260,00	45,00
011NWX	C	T	650,47	338,04	371,18	53,37

REMARKS / OBSERVACIONES

Spectrochemical identity test O.K.
Heat treatment: 1050-1100ºC.
Cooling with air.
Issued in agreement with TÜV SÜD Industrie Service GmbH (02/1983).

SURFACE AND DIMENSIONAL CONTROL
INSPECCIÓN SUPERFICIAL Y DIMENSIONAL

SATISFACTORY
SATISFACTORIA

WORK INSPECTOR
INSPECTOR

A. Heredia

Palmones, 13 Septiembre 2022

CHOGAL
surface treatments

CLIENTE:	DINAK,S.A.	**ALBARAN Nº**	**FECHA INICIO**	29/09/2022
PROYECTO:	BASTIDORES F (x2)/ (C3) BASTIDORES E (x2)/(C3) PIEZAS APOYO PARED (x4)/ (C3)	**2222019**	**FECHA FIN**	30/09/2022
CÓDIGO:	000/171764		**Rvdo.**	C. Puertas

Preparación de la superficie:
Desengrasado y chorreado al grado Sa2½ según norma ISO 8501-1:2007.

CHOGAL
CHOGAL, S.L.
Polígono Industrial A Pasaxe - Outeiro do Ferro, 63
36380 GONDOMAR - Pontevedra
TEL: 986 167 780

GRANALLADO

Material	Grado	Presión	Observaciones
Acero carbono	SA 2½	7 bar.	

APLICACIÓN

Producto				Espesor Película seca (µm)	Tª acero	Tª amb	Humedad	Repintado	
Fabricante	Lote	Color	Nº Color					Horas	Nombre del prod.
Imprimación epoxy (HEMPADUR 47300)	232076194 232085954		12170	167	20.4	20.4	52.1		
Poliuretano Alifático (HEMPATHANE 55610)	232024121T 231120852		7004	255	21.5	21.6	61.6		

Proprietà

DATA 4 ITALY

Progetto

DC 07
MILAN

Supervisore delegato del committente

GIS.IMO S.r.l.
centro direzionale quattrotorri
06132 PERUGIA
Tél. : +39 075 517 29 83
Fax : +39 075 518 12 88

Assistente del committente

GARRETTI ASSOCIATI S.r.l.
via Trieste, 9 - 20146 MILANO
www.garrettiassociati.it
Tél. : +39 02 430 6931
Fax : +39 02 480 170 51

Progetto architettonico

GARRETTI ASSOCIATI S.r.l.
via Trieste, 9 - 20146 MILANO
www.garrettiassociati.it
Tél. : +39 02 430 6931
Fax : +39 02 480 170 51

Opere edili e prefabbricati

GENERALE PREFABBRICATI S.p.a
centro direzionale quattrotorri
06132 PERUGIA
www.generaleprefabbricatispa.com
Tél. : +39 075 517 29 83
Fax : +39 075 518 12 88

Impianti meccanici

OMEGA CONCEPT IMPIANTI E SISTEMI S.p.a.
Via Chiese, 72 - 20126 - MILANO
www.engie-axima.fr
Tél. : +39 02 8180951
Fax : +39 02 8135163

impianti elettrici/dati

ENGIE CONTRACTING ITALIA S.r.l.
Via Chiese, 72 - 20126 - MILANO
www.engie.com
Tél. : +39 02 94399262
Fax : +39 02 94399655

SCHNEIDER ELECTRIC S.p.A.
Via Circonvallazione Est, 1 - 24040 STEZZANO (BG)
www.schneider-electric.com
Tél. : +39 0354151111
Fax : +39 0354153200

ENERIA
Rue de Longpont - BP 10202 - 91311 MONTLHERY
Cedex - FRANCE
www.eneria.fr
Tél. : +33 (0) 169802100
Fax : +33 (0) 169802150

Progettazione antincendio

STUDIO TECNICO ZACCARELLI S.r.l.
via Ludovico il Moro, 17 - 20143 MILANO
www.studiozaccarelli.it
Tél. : +39 02 891 200 81
Fax : +39 02 813 962 8

Supervisione

ITALSOCOTEC S.p.a.
Via Pontaccio,12/A- 20121 Milano
italsocotec@italsocotec.it
Tél. : +39 02 89051500
Fax : +39 02 89051501

Cod	Data	Descrizione
	25/01/2023	DOE

DATA 4 ITALY - DC07 Milan
Note de calcul / Calculation Note
Cheminée / Chimney

Wind Loads calculations according to EN 1991-1-4

Chimney input data:

Type of stack:	Unlined steel stack with insulation
Outer finishing:	Outer shield Inox
Reference height (m)	4
Total height (m)	13,4
Total height exposed to the wind (m)	3
Inner diameter(m)	0,6
Outer diameter(m)	0,7
Height"h2" (m)	4,8
(Intermediate support or bottom section with bigger resistance)	

Accessories

Ladders	-
Platform 1	-
Platform 2	-
Wind attenuator device	-

Input data wind action (according EN 1991-1-4)

Design Wind velocity vbo (m/s):	25	
Selected Terrain category:	3	
Cdir=	1,0	Recommended in 4,2
Cseason=	1,0	Recommended in 4,2
Co=	1,0	Due to the orography of the terrain wind velocity is not increased more than 5%.
k_1 =	1,0	Recommended in 4.4

Wind loads

z(m)	$q_{chim.}$ (N/m)	$q_{lad.}$ (N/m)
5	209	-
10	279	-
15	324	-
20	357	-
25	-	-
30	-	-
35	-	-
40	-	-
45	-	-
50	-	-

$q_{Plat.1}$ (N)
-

$q_{Plat.2}$ (N)
-

$q_{W.Att}$ (N)
-

$q_{chim.}$: Distributed wind load over the chimney in function of the height
$q_{lad.}$: Distributed wind load over the ladders in function of the height
$q_{Plat.1.}$: Wind load over the platform 1
$q_{Plat.2.}$: Wind load over the platform 2
$q_{W.att.}$: Wind load over the wind attenuator device

DINAK

Costumer: AN CAMINI
Project: Data 4 - DC7
Our ref.: 22000029

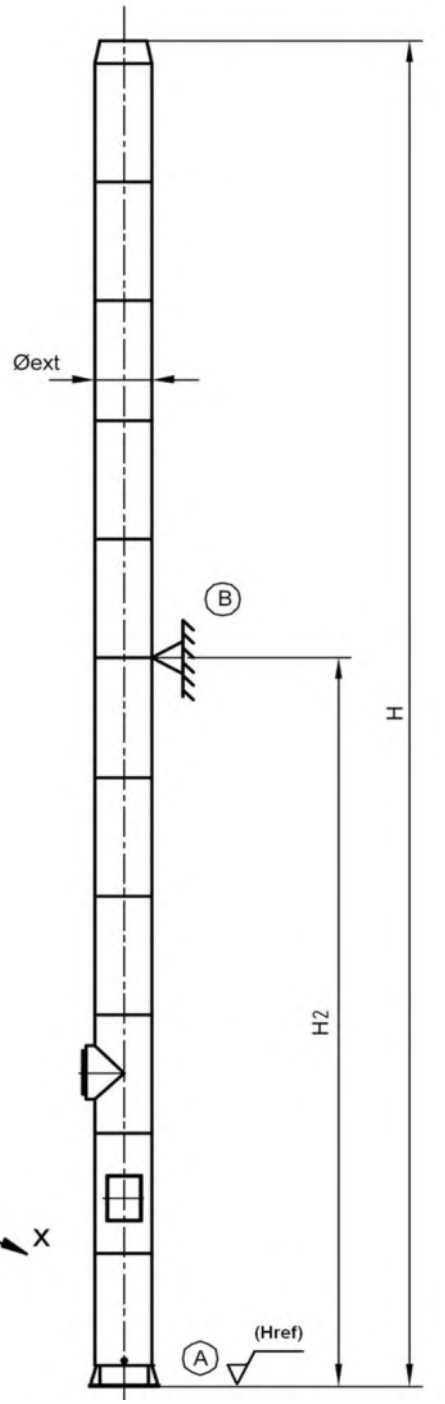
Date: 19/07/2022
nº P.: 0
rev.1

CHIMNEY TYPE E

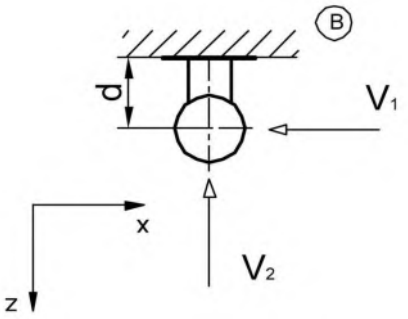
Scheme type of the efforts (Wind action)

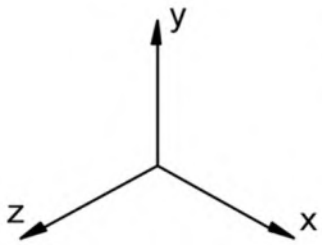
Chimney input data:

Total height (m)	13,4
Total height exposed to the wind (m)	3
Reference height (m)	4
Outer diameter(m)	0,7
Height 'H2' (m) (Intermediate support or bottom section with bigger resistance)	4,8
Distance 'd' (m)	0,75



Results of the efforts (not factored)			
Direction V1	**"A"**	**"B"**	
Fx	2,5	-3,7	(KN)
Wy	9,5		(KN)
Fz			(KN)
Mx	7,1		(KN·m)
My	1,9	-2,8	(KN·m)
Mz	4,1		(KN·m)
Direction V2	**"A"**	**"B"**	
Fx			(KN)
Wy	9,5		(KN)
Fz	2,5	-3,7	(KN)
Mx	11,2		(KN·m)
My			(KN·m)
Mz			(KN·m)





Note: Results of wind action in 2 perpendicular directions. It should be considered this action can occur in any direction of the XZ plane.

Wind action		
z(m)	**$q_{chim.}$ (N/m)**	**$q_{lad.}$ (N/m)**
5	209	-
10	279	-
15	324	-
20	357	-
25	-	-
30	-	-
35	-	-
40	-	-
45	-	-
50	-	-

$q_{Plat.1}$ (N)
-

$q_{Plat.2}$ (N)
-

$q_{W.att}$ (N)
-

Wind vel. vbo (m/s)
25

Terrain category
3

DINAK

Costumer: AN CAMINI
Project: Data 4 - DC7
Our ref.: 22000029

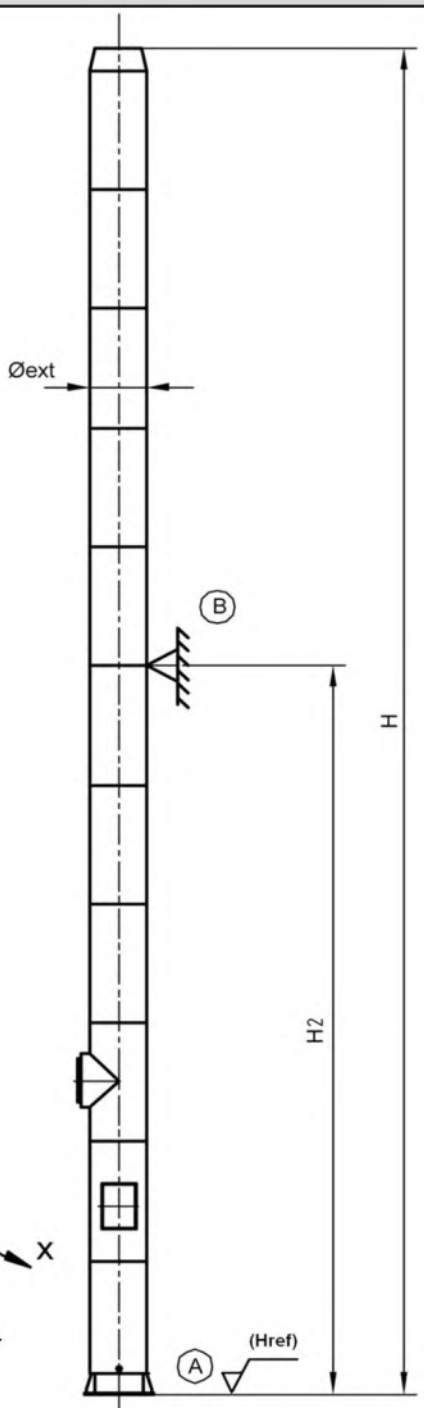
Date: 19/07/2022
nº P.: 0
rev.1

CHIMNEY TYPE F

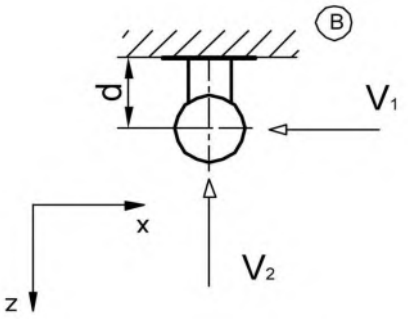
Scheme type of the efforts (Wind action)

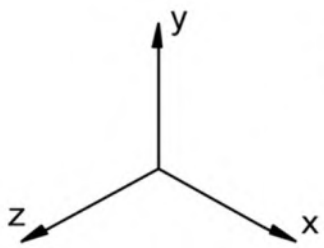
Chimney input data:

Total height (m)	13,4
Total height exposed to the wind (m)	3
Reference height (m)	4
Outer diameter(m)	0,7
Height 'H2' (m)	4,6
(Intermediate support or bottom section with bigger resistance)	
Distance 'd' (m)	0,75



Results of the efforts (not factored)			
Direction V1	**"A"**	**"B"**	
Fx	1,9	-3	(KN)
Wy	9,5		(KN)
Fz			(KN)
Mx	7,1		(KN·m)
My	1,4	-2,3	(KN·m)
Mz	4,4		(KN·m)
Direction V2	**"A"**	**"B"**	
Fx			(KN)
Wy	9,5		(KN)
Fz	2,5	-3	(KN)
Mx	11,5		(KN·m)
My			(KN·m)
Mz			(KN·m)





Note: Results of wind action in 2 perpendicular directions. It should be considered this action can occur in any direction of the XZ plane.

Wind action		
z(m)	$q_{chim.}$ (N/m)	$q_{lad.}$ (N/m)
5	209	-
10	279	-
15	324	-
20	357	-
25	-	-
30	-	-
35	-	-
40	-	-
45	-	-
50	-	-

$q_{Plat.1}$ (N)
-

$q_{Plat.2}$ (N)
-

$q_{W.att}$ (N)
-

Wind vel. vbo (m/s)
25

Terrain category
3